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ABSTRACT

The South Carolina Environmental Education Conference was held February 3 and 4, 1971, at Hobcaw House, Georgetown, South Carolina. The Conference was intended to provide a dialogue between teacher-training institutions, State Department of Education personnel, and other state agency personnel interested in environmental education. One aim of the Conference was to encourage college and university education departments to incorporate the use of available environmental education materials into their curriculums. Addresses, accompanied by resulting discussions and suggestions, are presented verbatim in this report. Topics include: The Need for Environmental Education as an Integral Part of Teacher Education; Existing Teacher Training Programs and Material; Federal Programs as a Source of Funds; Existing Materials for Environmental Education; Principal Parts of a Model Program; Employment Opportunities; Implementation; and Evaluation of Environmental Education Programs. Lists of conference members, staff, and environmental education materials available from the South Carolina State Department of Education are included. (BL)

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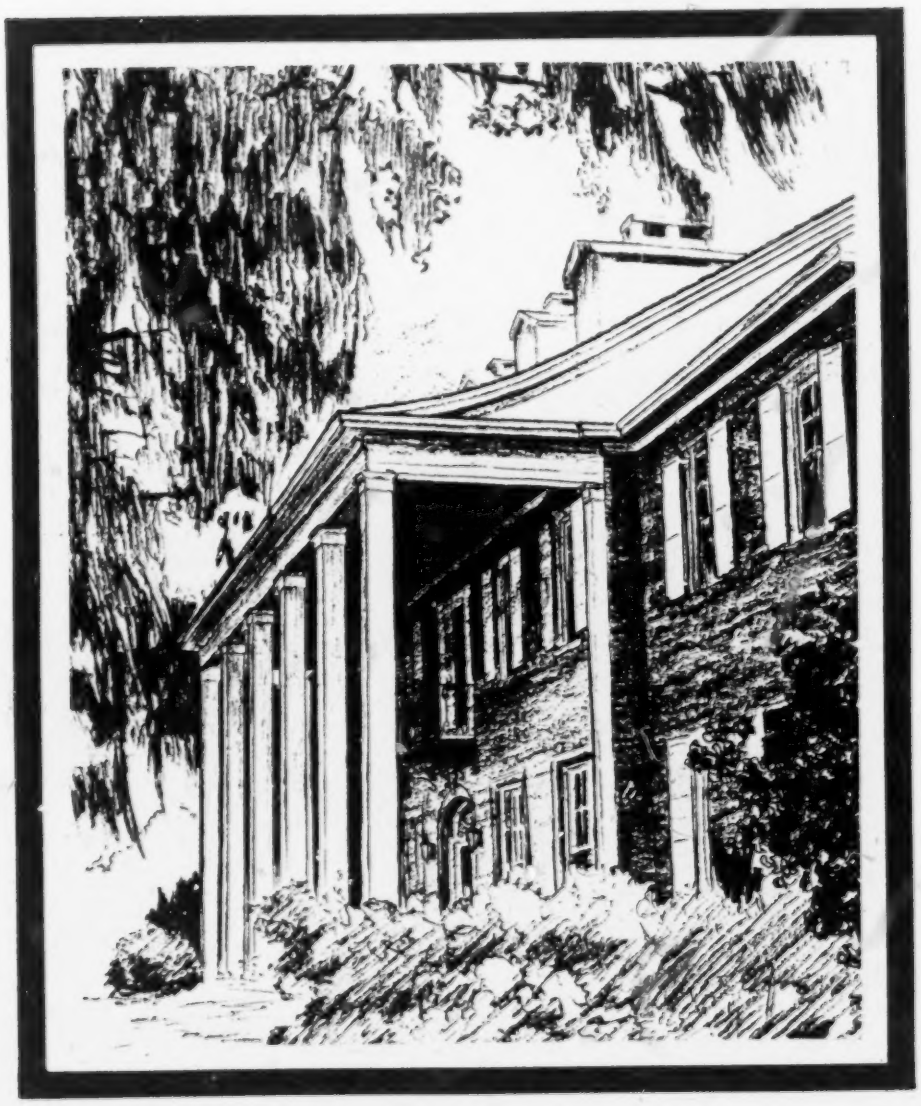
PROCEEDINGS OF SOUTH CAROLINA ENVIRONMENTAL EDUCATION CONFERENCE



HOBCAW HOUSE

FEBRUARY 1971

SE 012 338

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PROCEEDINGS

of

SOUTH CAROLINA

ENVIRONMENTAL EDUCATION CONFERENCE

Sponsored
by

South Carolina Department of Education

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in
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Hobcaw House
Georgetown, South Carolina
February 3-4, 1971

HOBCAW HOUSE

Site of the South Carolina Environmental Education Conference

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INTRODUCTION TO THE CONFERENCE PROCEEDINGS

The South Carolina Environmental Education Conference was held February 3 and 4 at Hobcaw House near Georgetown. One representative of each teacher-training institution in South Carolina was invited as well as representatives from some schools in adjoining states.

The Conference was intended to provide a dialogue between teacher-training institutions, State Department of Education personnel, and other state agency personnel interested in Environmental Education. At the time of the Conference, it was felt that much excellent material, particularly the "People and Their Environment" guides, developed in South Carolina with a grant from the Belle W. Baruch Foundation is available to help the classroom teacher incorporate Environmental Education into subject areas, but that this was not being done in all schools.

It was hoped that the Conference would encourage the college and university representatives in attendance to encourage their schools to incorporate the use of these materials into their curriculum as they saw fit.

What follows are the ideas, suggestions, and discussion that occurred at the Conference. While it is too early to fully evaluate the results, interest in Environmental Education and workshops, as well as undergraduate programs, Environmental Education appears to be increasing since the Conference.

It would be remiss if I did not make a special note of thanks to the Belle W. Baruch Foundation who provided the financial support and meeting rooms of Hobcaw House for the Conference. I'm sure all participants thought it was a worthwhile investment and that they gained considerably from the Conference.

JYJ

SOUTH CAROLINA ENVIRONMENTAL EDUCATION CONFERENCE
HOBCAW HOUSE
Georgetown, South Carolina

P R O G R A M

Wednesday - February 3, 1971

Morning Session		Mr. John Y. Jackson, Moderator
	Opening Remarks	Mr. John Y. Jackson
	The Need for Environmental Education as an Integral Part of Teacher Education	Dr. Thomas J. Rillo
	Discussion	
	Coffee Break	
	Existing Teacher Training Programs and Material	Mrs. Sarah Walker
	Discussion	
	Adjourn Morning Session	
	Buffet Luncheon - Holiday Inn	
Afternoon Session		Mr. A. H. H. Dorsey, Moderator
	Federal Programs as a Source of Funds	Mr. John Y. Jackson
	Discussion	
	Existing Material for Environmental Education Programs	Mr. A. H. H. Dorsey
	Discussion	
	Principal Parts of a Model Program in Environmental Education	Mr. A. H. H. Dorsey
	Discussion	
	Coffee Break	
	Employment Opportunities in Environmental Education	Mr. John Y. Jackson Mr. Robert N. Saveland
	Discussion	
	Summary Statement	Dr. Thomas J. Rillo
	Adjourn Afternoon Session	

Thursday - February 4, 1971

Morning Session		Mr. George E. Dainty, Moderator
	Implementation of Environmental Education Programs	Dr. Thomas J. Rillo Mr. John Y. Jackson
	Discussion	
	Coffee Break	
	Evaluation of Environmental Education Programs	Mr. F. E. DuBose Mr. Roger A. Seamans Mr. Lewis Dameron Mr. Walter T. Ahearn

THE NEED FOR ENVIRONMENTAL EDUCATION AS AN INTEGRAL PART OF TEACHER EDUCATION

Dr. Thomas J. Rillo

It is a sincere pleasure to have the opportunity to address this group and to present some of my views on the subject of teacher preparation for environmental education. I have never spoken to such a group before that has so much power to exercise significant innovations for environmental education leadership at the college and university levels. It is a real challenge and I hope that I am capable of meeting it.

The need for environmental education has never been more evident than it is at the present time. One does not have to have vast statistical evidence or computerized data in order to be cognizant of the seriousness of environmental degradation. Nor does one have to read the voluminous articles and books which have been written by the prophets of gloom and doom.

American education has felt the pressure of rapid change of environment and of societal transition more during the last decade than in all of the previous decades. These changes have been varied, however, not one has had greater importance to man than the need for environmental education. Environmental despoilation and degradation has become increasingly important in the minds of the American people. Once the various pollution situations became visible to the senses and once the threshold of this awareness was crossed, the concern and motivation for action became increasingly paramount in the thoughts of citizens everywhere.

There is an age old truth which is not often appreciated that states that beauty is in the eyes of the beholder. Beauty is a sensory experience and can often be equated with quality. Every person whose senses are functional has the ability to perceive beauty or to equate quality. Every person is entitled to the opportunity and the right to expect that his environment will provide the beauty and quality necessary for the emotional, psychological and physical well-being of people. In this realm of perception man is equipped to take his environment into account. It enables him to cope with his environment, making use of those factors which can be turned to his advantage and forfending adverse conditions wherever they are encountered. Despite this unique ability to perceive and to plan, a casual look at man's physical, cultural and natural scene reveals a situation which, in the long run, must be untenable for the human race.

There can be no fruition to the search for individual happiness unless the need for the restoration of quality to the environment is made a part of the legal and regulatory machinery of society. Our urban and rural areas have deteriorated to the threshold of intolerance. In our frantic and headstrong pursuit of individual wealth, happiness and national identity, we have overlooked the aesthetic function as well as indiscriminately, expediently, and stupidly exploited the land and its resources. Our cities are models of inefficiency and paragons of environmental decay. The environmental problems confronting modern

man are by now legion. They are identified as air pollution, water pollution, noise pollution, diminishing open space for leisure time activities, solid waste disposal, sub-standard housing, over population and a host of associated problems.

These environmental changes take place so gradually, insidiously, unobstrusively, that they escape our attention until irreparable harm is done. Cumulative contamination of the environment by the waste products of our factories, kitchens and bathrooms; gradual destruction of wildlife habitats with all they contain; the sprawling blight that flows from our cities further and further into the countryside; the indestructible wastes of our technology that beer can after auto carcass, plastic bottle after plastic bag spread filth over our beauty areas; these have not yet reached that point in public understanding where concensus can lead to effective corrective action. The ingredient that is missing is an informed and enlightened citizen, who because of his experience and knowledge, is motivated to participate in action programs leading to either the modification or alleviation of the environmental ills of his community and society.

Each of us builds into his consciousness a mass of controlling and guiding forces which tend to tell us, in a given situation, how to react, and what to do, and what to say, and what to think. Much of this is a direct result of that which we experience and learn. In this framework of experience we are continually subject to pressures, ideas, and concepts which provide us with a sound set of principles for guidance within the limits of our abilities to assimilate and synthesize. Environmental education seeks to provide this experiential background so necessary for a citizen to become capable of being aware, articulate, and activated with reference to environmental quality. It is a program of educational experiences about man's total environment. It does not limit itself to just the natural resources of the biophysical world. It extends the scope of the program to include both the internal as well as the external environment of man. In this light the environmental problem of eliminating conditions whereby children die from lead poisoning from eating peeling paint flakes from the wall of a cold water flat in a ghetto area of a city can be considered within the scope of environmental education. The despoilation of a pristine natural beauty area in the country can also fall within the broad continuum of the environmental education spectrum. Environmental education is that education whereby attitudes, values, concepts, basic understandings concerning the environment both internal and external are developed and assimilated through an experiential program offered at all levels and resulting in the development of an aware, articulate, and activated citizenry. Environmental education is often confused with environmental science by the layman and educator alike. Environmental science is different in that it has a body of knowledge that is uniquely associated with the field of monitoring environments and the application of scientific technology to the solution of environmental problems. Some individuals even consider environmental science as a separate discipline. Nevertheless, it does concern itself with the monitoring techniques of the environment and the application of what is known in the field of applied science and technology to a design for the restoration of quality to the biophysical environment. Environmental education on the other hand is interdisciplinary in approach. It does not claim a unique body of knowledge nor is it considered a separate

subject or discipline. Environmental education presumes that every discipline can be utilized as a vehicle for developing environmental sensitivity or awareness. Every subject, every grade level, every teacher, every academic institution, is not exempt from assuming this important responsibility. The role of the educator is clearly definable. This responsibility involves the provision of opportunities for direct learning experiences concerning the environment in which the student lives, works, loves, hates, gets into trouble, meets with success, etc. The greatest segment of our national population in one place at one given time is the public and private school group. Of this specific population the largest segment concentrated in more limited physical areas are those who attend schools in urban areas. The environmental education program should begin in the classroom with both teacher and students examining the curriculum together and to ascertain which concepts or big ideas can best be enriched through outdoor activity. The program emanates from this classroom scene and extends itself ever outward in ever-increasing concentric circles or zones. This environmental zonation considers the individual first and then the indoor environment in which he is located. Then the circle widens to include the zone just beyond the four walls of the classroom. The playground or a nearby park might become the setting for this next environmental zone. As the zonation increases the students will find themselves studying in external environments located further away from the school and neighborhood. Through this approach of classroom emanation a principle that no two programs need be the same emerges. The mistake which has been made in the past is to superimpose a program model from the outside which was not uniquely developed for the local situation.

Environmental education can be approached from at least two aspects. The first aspect of environmental education deals with the adult population and the dissemination of information to this group concerning their environment and its despoilation and degradation. Here an attempt is made to provide an experiential program of information dissemination to the point where adult citizens are motivated to participate in immediate action oriented activities concerning environmental issues. This approach is concerned with the <u>now</u> situation and what can be done <u>immediately</u> to minimize the impact of environmental problems. It is not intended that youth cannot participate or become deeply involved in this type of immediate eco-action activity.

However, the second aspect of environmental education is more closely associated with the teaching profession, namely the education of the student concerning his living environment called the biophysical world. Because this student group is so concentrated in one place at the same time, it behooves educators everywhere to take advantage of an excellent opportunity to provide an experiential program of environmental education to be integrated with the existing curriculum of the school. Beginning at the kindergarten level, and extending upward through the grades, the program of environmental education can be correlated with the basic concepts inherent in every subject taught in the school. In this approach no teacher is exempt from the responsibility of developing environmental awareness or sensitivity in each of their students. No discipline is exempt although some have higher potential for environmental activities than others.

In this light environmental education is then an interdisciplinary approach to more effective learning concerning the total living environment. It becomes an integral part of the curriculum and thus is not a separate subject nor should it be a department. It would be foolish to set up as a separate entity because the responsibility will then be vested with those who have direct contact with the program. They will be considered the specialists and the other teachers will feel that they are not a part of the total program. If broad themes or basic understandings about environmental education are to be developed in some type of curriculum master plan then it behooves administrators to include all of the subjects in the total curriculum and the respective teachers responsible for teaching them. If environmental education is concerned with the total environment of the individual then one cannot eliminate certain subjects because the real world is not so neatly compartmentalized. Perhaps this has been the real dilemma in the evolvement of contemporary educative procedures. It reminds me of a situation in a college field science class where the students were studying rock formations and a red fox ran across their path. The students were naturally excited about such a rare phenomena and reacted with an instinctive curiosity. When they asked the professor to help them understand the situation more fully he merely replied, "we are here to study rocks and not mammals. Keep your minds on our objective." This was a classical example of how at times we as educators apply tunnel vision to a vital learning situation -- a sort of academic blindfold.

Environmental education is based on the fundamental premise that we learn best through direct experiences. It assumes that much of what man knows has already been discovered. However, the thrill of discovery through direct experience should never be minimized. If retention is our basic goal in education then we should seek more effective and efficient ways of achieving it. Jean Piaget, Swiss psychologist, whose ideas on cognitive development have been increasingly recognized by educators in the United States, has maintained that the central idea in the structure of knowledge is the operation. He explains, "Knowledge is not a copy of reality. To know an object, to know an event, is not simply to look at it and make a mental copy or image of it. To know an object is to act on it. To know is to modify, to transform the object, and to understand the process of this transformation, and as a consequence, to understand the way the object is constructed. An operation is thus the essence of knowledge, it is an interiorized action which modifies the object of knowledge. For instance, an operation would consist of joining objects in a class, to construct a classification. Or an operation would consist of ordering or putting things in a series. Or an operation would consist of counting, or of measuring. In other words, it is a set of actions modifying the object, and enabling the knower to get at the structures of the transformation.

Thus, Piaget presents a case for direct experience with the phenomena to be learned and the importance of involvement of each learner if a change in behavior is to occur. This is how children learn and stresses the importance of direct experience in each environmental education activity. The environmental education program should be related to the subjects students study in their regular school curriculum. Basic concepts and understandings of the environment should not only be an integral part of every subject matter area at each grade level, but

should spiral upward through the grades. A concept or basic understanding can be introduced at the primary level and continue upwards through the grades attaining sophistication and refinement with each succeeding step.

Although environmental education programs have been increasing in number during the last five years, there is a real need for all schools to become involved if we are to witness a significant change in the attitudes of young people. They will be the citizens of tomorrow and will inherit the responsibility for making wise and judicious decisions with reference to the environment in which they wish to live. If every kindergarten in the nation were to institute a program of environmental education today and the programs were to expand upward through each grade level, then it would be at least fifteen years before we could efficiently witness the results of such programs. Some scientists like Paul Erlich, writer of the book, Population Bomb; Barry Commoner, author of the book, Science and Survival; the Paddock brothers of Princeton University, writers of the book, Famine-1975; all claim that we might not have quite that long as a species on planet earth. I would like to believe that perhaps we have if we act now. Certainly it is better than resigning oneself to a fate which he does nothing about. I firmly believe that there are alternatives and that environmental education is but one of imperative alternatives if man is to survive. What could be more basic than education for survival? Without the advent of survival in a rapidly changing world other considerations do not have equal priority. Without life there is death, and with death go all of man's individual and collective hopes and aspirations for the good life.

One of the detrements to widespread adoption of environmental programs in the schools has been the lack of qualified leadership. The responsibility for the preparation of this leadership is clearly that of the teacher preparation programs of colleges and universities. There are too few colleges and universities in the country that are preparing pre-service teachers to use the outdoor laboratory as an extension of their indoor classrooms and laboratories. There are some very fine in-service programs for environmental education at the college and university level, however, here too there are far too few in number in terms of what is needed. The perpetuation of environmental education can only come about when both pre-service and in-service teachers have the opportunity to gain knowledge and insight into its implementation at the private and public school levels.

More emphasis needs to be placed on the development of environmental education preparation programs at the pre-service level. These young prospective teachers are just beginning their careers and they have not as yet established a resistance to innovative ideas and programs. Also there are many more pre-service teachers than there are in-service teachers and because of this fact are able to implement environmental education techniques into their respective teaching situations. This is the basic way to implement a program of environmental education for it requires nothing more than a qualified and interested teacher who, given the freedom, can begin to develop a program for her grade level. Out of this embryo will develop a more mature program involving more grade levels and expanded activities. Eventually the need for either a part-time person or full-time person will be needed to lend leadership to the total

program. Programs that grow and develop like this will insure continuity of activity despite fiscal setbacks which occur from time to time.

To say that teacher preparation programs are not equipped to provide such experiences is to think very narrowly of the process of teacher education. In many instances all that needs to be done is to utilize certain courses and to provide a laboratory situation where the methods and techniques of environmental education teaching can be put into practice. This laboratory experience should include direct experiences with the teaching of real and live youngsters in the field.

The laboratory experience can be a resident experience or a series of short term experiences in a variety of learning climates such as an urban, rural, marine, or woodland environment. Only if pre-service teachers have the opportunity to learn how to teach beyond the four walls of the schoolroom will they attempt to do when they assume full-time teaching positions after graduation. Teachers unaccustomed to the value of environmental education will tend to shy away from it. It is only natural for teachers to teach those things in which they have had training and experience. They will move from the known to the unknown and seldom from the unknown to the unknown. The familiar represents security and so they remain with doing <u>business as usual</u>. To venture beyond the status quo will require at least an experiential background with the methods, techniques and values of the innovative notion called environmental education. Elementary education departments are the most logical places to incorporate environmental education courses or component units in methods and techniques courses. These departments prepare the greatest number of teachers who in turn will touch upon the academic lives of the most students. The primary grade level of teacher preparation which might span the grade continuum from kindergarten through eighth grade is an excellent place to begin a program of environmental education teacher preparation. You will do this if you believe that environmental education is everybody's business and not just the domain of those who are involved in the sciences. Environmental education should begin on Daddy's knee, however, we know that it does not. Where then should we begin? When the child first enters school is a most logical place. Does the child only become involved with environmental education when he is in the science class? We know realistically that science at the elementary school level has not been the most popular activity with classroom teachers. Sometimes it is not covered at all during the course of a school year. Then environmental education becomes a consideration for all the subjects that the typical elementary classroom teacher is responsible for. If the program is to be environmental science, then the chances that it will begin at the kindergarten level are slim indeed. To say that the two areas of environmental preparation do not share some common denominators is to be false to oneself. They do overlap at times, although they have different areas of concentration.

Only if colleges and universities accept the responsibility of leadership preparation for environmental education, will it be perpetuated throughout the schools of our land. The colleges and universities have done so for other programs such as special education, driver education, learning disabilities, reading, and others. Why not environmental education? Without survival what can be the importance of overcoming your learning disability or learning to drive a car safely? Without life all other

considerations and concerns diminish into the darkness.

Historically we have failed to prepare teachers for teaching about the environment. We have offered courses in too few instances and in many cases they have been completely isolated from the laboratory experience. In some situations we have offered the laboratory experience without the classroom preparation in teaching techniques for environmental education. Our greatest imput for leadership preparation in environmental education lies very clearly with the pre-service teacher. The curriculum design for accomplishing this task will vary from college to college, from university to university. However, it should always include an emphasis on the indoor-outdoor-indoor approach to environmental awareness and the provision of direct experience with youth in the field held in paramount importance.

The in-service preparation of teachers for environmental education is a bit more simple to incorporate into the existing academic curriculum. There are some fine graduate programs which offer advance degrees in environmental education. The design has been to develop new courses in the specialization area and to utilize the existant courses already in the catalog. The elective area was incorporated into courses which already were listed among the course offerings of the institution. This procedure has provided environmental education people who are currently serving as catalysts for the development of environmental education programs both at the public school level and the collegiate level. The graduates of these programs have obtained positions as supervisors or coordinators of programs at the public school level and they function much like the supervisors of other specialized programs. If these positions are not available then the graduates of the advanced degree programs can always return to the classroom and begin to develop a program from this position. If more classroom teachers were doing environmental education with their students then the demand for leadership in the form of a full-time coordinator or supervisor would increase. This may be the best way to begin a program. It will not be long before other teachers and students will become interested in the activities of the innovative teacher and the respective class. If the interest is large enough then perhaps the teacher will be given free time to develop the program beyond just the environmental activities with her own class. When a program develops in this manner a sound foundation can be established in accordance with the basic philosophy of the school system. Many a part-time coordinator has become full-time as a result of this humble beginning.

One distinct advantage of employing an environmental education coordinator lies in the fact that this person can conduct workshops for other teachers. The workshops can be conducted in the same school building in which the teachers teach and the coordinator can work with small groups of teachers on a continual basis. Frequent and smaller workshops conducted on a more intimate level by a local resource person can be far more effective than the employment of an external resource person in a larger, one-shot affair workshop. The detrement here lies in the fact that many school systems are unwilling to invest funds for an additional salary needed for such leadership and the necessary program equipment. A value decision has to be made. Is environmental education important enough and crucial enough to be supported by the

school budget? Is a program designed for increasing the chances for survival through extended educational experiences important enough to be considered indispensible to any comprehensive school curriculum? These value decisions need to be made by all who are concerned. In many cases a motivated school administrator can get a program off the launching pad far more quickly and effectively than an interested and qualified teacher. Perhaps what is needed is a short term course for school administrators in environmental education whereby they can accumulate knowledge and expertise in an innovative approach to more effective learning about one's living environment.

Perhaps courses for administrators could include a unit on environmental education. This could be a part of a general course in the preparation of a school administrator. Certainly the support of administration is almost a necessity if a program is to be implemented.

In all attempts to teach teachers how to function effectively beyond the classroom walls emphasis should be placed on method rather than fact. The process of gathering data in the field should be foremost in consideration and the teacher does not have to be a fountainhead of knowledge and facts. Rather than being a dispenser of facts, the teacher could be a guiding influence to references and resources. This will be more difficult to teach to the in-service teacher than it will be to the pre-service teacher. Pre-conceived notions of how a teacher should act and teach are firmly entrenched in the in-service teacher. They learned by example and perhaps something is wrong with the way they were taught in our colleges and universities.

For the most part educational institutions have most of the resources and facilities necessary for adequate preparation for this much-needed leadership for environmental education. The major problem will be an all-campus approach to provide the necessary experiences in the appropriate departments, courses, and activities. The major advantage of this approach is that the existing resources of all departments involved will be effectively utilized, thus avoiding duplication; students with many interests and varied backgrounds can get the preparation in environmental education through the department in which they have chosen a major concentration; each department can make the necessary adaptations to include environmental education including interdepartmental cooperation. This is an idealistic proposal and although it could work realistically, the departmental barriers caused by academic proprietorship in many situations would prevent a smooth operation.

What might be more feasible is an interdisciplinary organization such as a division or institute which would be responsible for a core of courses in environmental education or environmental studies for the undergraduate students as well as for the graduate students. Staff members of the division or institute could conceivably come from the various departments of the larger institution. They could be representative of different departments and different disciplines. This would assist in insuring that there would be more interdepartmental cooperation. This unit would facilitate campus-wide participation in the development of an effective program for leadership preparation.

One of the greatest innovations needed in teacher and leadership

preparation for the environment lies in the field experiences provided in undergraduate and graduate education. At the undergraduate level, a student should have an opportunity to go beyond the field trips associated with course work and the laboratory experience. Student teaching experiences should be made available at various environmental education centers where programs for youth are conducted. The time spent teaching here should be acceptable as fulfillment of the student teaching requirement providing that the experience meets with the basic criteria established for the regular student teaching assignment. More opportunity needs to be provided for the part-time graduate student to spend more time in a field experience for an extended period of time. This could be accomplished in lieu of the summer requirement that most graduate schools stipulate for residency. For the full-time graduate student an on-the-job experience or internship for a specified period of time would afford the necessary expenditure of skills and knowledge with children and youth attending an environmental studies center. Undergraduate students and graduate students are asking as never before that their studies be meaningful, that they have a chance to deal with a real world and significant aspects of it. The better students are not content with routine performance. At the same time that there is a rising tide of expectation for the quality of education, there is a counter current making it more difficult to raise the standard. With higher education now established almost as a right rather than a priviledge, with high education not restricted to those of a scholarly bent or to those able to pay their way, enormous challenges confront the academic world. Reform and innovation in education necessary to meet these challenges will require faculty able to cope with new situations.

I have attempted to present some of my views on how leadership preparation could be uplifted for environmental education. In the past it has usually been an interested individual who through the process of trial and error managed to begin a program. However, it will be necessary for colleges, universities, school boards, and all of those involved in the education and development of teachers to plan strategies for the implementation of a broad and comprehensive leadership program for environmental education. We look forward to the day when environmental education will indeed be considered a very important part of the total education of every citizen no matter what his career plans may be.

The time for us as human beings in the biophysical world is growing rapidly shorter. Prophets of the environmental future have predicted a catastrophic situation if man does not reverse the tide of his technological manifestations. As early as 1938, one such prophet was a noted British anthropologist, Stanley Casson. In a book entitled, Progress and Catastrophe, Casson states, "when man's practical inventiveness runs ahead of his moral consciousness and social obligation, then he ultimately faces disaster". How timely for the contemporary scene was Casson's 1938 statement. The time for us may indeed be very short and one could become very pessimistic and embrace the existential notion of singer Peggy Lee who sings, "Is that all there is---bring on the booze and let's keep dancing". However, nothing constructive can ever come out of a pessimistic attitude. Constructive action can come from an optimistic attitude and I hope that all of us are capable of reaching this realm.

The preparation of environmental education leaders is urgent business.

Lest we seem too sanguine, it should be pointed out that if by some unimaginable miracle all of the problems of the preparation of environmental education leadership were to be solved and each graduate stepped out with a new shiny degree with emphasis on environmental education in hand, fully equipped to do a splendid job of teaching about the environment, there would still be much to do to assure the best environmental education possible for all students. Environmental education is not the panecea for all of the ills confronting contemporary society. However, I think it would go a long way toward helping to make the living environment a great deal more qualitative.

As a despairing optimist, I feel that the environment can still be saved in terms of a qualitative existence. I have faith and hope in the young people of our country. They are perhaps the most honest group of individuals that I have had the pleasure of working with. I have witnessed their concern and it is heartening. My role as a teacher is to provide them with the background experiences they will need to call upon as they attempt to restore quality to the environment. It is the only environment they will ever know--the environment of the planet called Earth.

Sarah Walker

Clemson University

I would like to tell you about the existing teachers' programs in environmental education that I am aware of in South Carolina and I hope that those of you in the audience from South Carolina or other states who have some type of program would add to this after I have finished. Let me start with Clemson and then work out farther on various types of programs that I am aware of, plus some information that you might be able to use in your program now. Sam Buckner is here from the Education Department at Clemson, his office is right down the hall from mine and as I understand it, there is nothing at the present time in our Education Department at Clemson for teachers in the area of environmental education. I am teaching, not in the Education Department, but in the Recreation Department at Clemson.

I am very interested in teaching both education students and recreation students. However, my courses are optional for education students and it is required for recreation students. So most of my classes are filled up with recreation students. In this course, I try to put a great deal of emphasis for the recreation majors on how they can provide facilities and programs to public agencies and to schools for environmental education. We also try to do a little agitation in stirring them up and hope to get them into doing some action type of activity as Tom Rillo talked about a little earlier. I would be glad to send you a copy of my course outline and the bibliography that we used and some of the comments that we have. Perhaps that might give you some idea of the things that you might include and I think that most of you would be doing these sort of things in your methods class, since most of you are in the Education Department. Sam Buckner and some of the other teachers in the Education Department at Clemson have allowed me to come and talk to their methods classes, their elementary and secondary methods classes, particularly about the curriculum guides that you received last night. I would like to see in the future at least a portion of the methods classes or maybe even a whole course for pre-service teachers to make them aware of this area that we are going to be talking about in this whole conference. I don't know if its ever going to come to pass or not, but that is what I am aiming for and I would hope that we can get something like that not only at Clemson, but at your institution also.

There are, however, many other courses that are taught in places other than the Education Department of Clemson, and at other institutions, that have a great deal of direct bearing on environmental education. I think probably to summarize my whole talk, if you don't hear anything else, a lot is being done in environmental education, but its not called that and is part of other courses. Clemson has a graduate program in environmental systems engineering and they are offering many courses that have, of course, a great deal to do with environmental education on a very technical level. One course that they are teaching that is perhaps not over the heads of students other than their majors is called Man and His Environment. It was offered on a trial basis, both last semester and this semester. Dr. John Austin of that department is in charge of the program. He set it up on a seminar basis where they discussed various topics at different times. Last semester's emphasis was on the problems. This semester emphasis is on possible solutions to those problems. You

did not have to be a major in environmental systems engineering education department to enroll. That is briefly the things that are going on that I am aware of at Clemson that have some relationship to environmental education.

Let's move on to Furman. Dr. Gary Harris has done, I think, very interesting work in the area of environmental education through the education department. Last year through funding of the Greenville County funds, he was able to set up a residence program in the spring at Camp Hollis, which is owned by Furman University, for two 5th grade classes. I was able to visit the program in operation and see Gary use education students from his methods classes as teacher aides. One of their assignments during the semester was to help set up lessons that would be done during the resident program and the procedures by which this residence program would be operated. The students went out on Monday and came back on Friday. The classroom teachers, librarians, principals, and two or three professors from the biology department were used in their resident program. They also involved a few parents, and he was a bit disappointed that there were not more parents who were able to come out and stay overnight with the children at the camp. After the success of the program last spring, they are enthusiastic for this spring and they hope to be able to have 13 fifth-grade classes from four schools in Greenville partaking of residence programs this coming spring. (note: the resident program was conducted but only 5 classes participated because of funding. JYJ) Again, this will be a Monday through Friday kind of experience and the location has not yet been determined. (note: Camp Burgess Glenn was used. JYJ) They found that the facilities they were using simply did not have the sewage capabilities for that many kids for that long of time. They will just have to move to some other place. They are trying for more emphasis this year in the area of training the classroom teachers and the people who might be able to do this again instead of just working with one program or a one shot deal, through the setting up of training programs for teachers and the people, various Furman students and people who will be running the residence program will be going. I am hoping that some of my students will be able to go over and see how this workshop is operated, too.

The University of South Carolina, I am sure they are doing other things that I am not aware of, but John Jackson suggested that I call Dr. John Dean, who is in the biology department about the programs he is doing. There are several very interesting aspects of environmental education in some of the biology courses that are offered on the various levels there. In Biology 102, which is the second semester, the zoology half of the freshman level required science courses, the last three weeks emphasize environmental biology. This is one way of putting part of a freshman level class on emphasizing environmental awareness. Also, they have a 700 level graduate biology course that is set up as a seminar where each student in the course selects his own organism, whatever he perhaps has done some research on previous to this course and then studies the effects of pollution upon that organism. Now John Dean asked as a technical reference that each student is the class's own specialists; for example, one student is a specialist on a set of various types of pollutants on frogs, or worms, or chickens or whatever organism he has selected to study these effects upon.

Another course that they found quite a bit of success with in the biology department at U.S.C. is Biology 400 entitled Man and His Environment. This is for non-science majors and you probably find the same situation with your students where they have to take a certain number of science courses and the students are often looking for a course that is not so technical that it goes right over their heads and yet it still meets the science requirement. That's what this course is set up for. They review various subject areas that these students are majoring in, but with an ecological viewpoint. For example, perhaps you might ask the students who are English majors or literature majors to go back and read some books that they have already read before, but with an ecological viewpoint. What is the ecological emphasis in "Grapes of Wrath" or "Moby Dick"? How does the environment shape the characters within these pieces of literature? Then, after they have done this through the direction of their instructor, the student himself picks out a novel for everyone in the class to read - not necessarily just those who are English majors. But he says "O.K." I am trying to get the idea of what you are talking about viewing literature with an ecological viewpoint. Now I suggest that you all read such and such a book and then after a certain period of time, when other students have read that book, that literature student leads discussion in saying - do you see how the environment affected this major character in this novel or this piece of literature. History majors, for another example, would look at the ecological effects that have shaped our past history. For example, the ecological effects that determined the building of the Panama Canal or the fact that Hannibal conquered Italy by piling salt under the earth and the fact that that land has been quite sterile ever since. Or the fact that Napoleon was really defeated by Typhus, by a lack of sanitary conditions. These types of things can give new meaning to history, but the student is already well versed in history because he is a history major, but you start to see it from the ecological viewpoint.

There is one other course that John Dean mentioned that again interested me a great deal. This is called the Biology of Polluted Water. The course was first taught through the students' union as a non-credit course that students could take if they wanted to. Now one of the difficulties in setting up a non-credit course is that it has to meet at hours when credit courses don't meet and it has to be done voluntarily by the professors, so that means that you meet at weird times like 9:30 on a Friday night, and who wants to meet at 9:30 on a Friday night, or 4:30 in the afternoon on Tuesday or something like that. They are varying attendance, but it seems to be successful enough that they have repeated it again and they are also repeating it on a credit basis this next fall. So I say that John Dean is doing some very interesting things in the Biology Department, and I am sure that there are other departments in the University of South Carolina that are doing something like that, but I am simply not aware of them.

Converse College - there's a biology program for teachers through their MAT program, Masters of Art in Teaching, which is a program for biological sciences, a methods course for teachers in biological science and here the emphasis is on field trips and direct learning as Tom was just telling us about before. So I think Bob Powell would even say that it is mainly due to interest of the instructor who is teaching that course rather than an overall philosophy of the department or something

that has been planned, that every student is going to be able to have a chance to get. I think one of the things about it is a particular emphasis on conservation in this class and on doing, learning by doing.

Last night Bob Saveland was saying that the University of Georgia, in Athens, has set up one very interesting course, a course that is interesting to me, Social Problems of Environmental Quality. And Bob has brought in several outside speakers. Let others do the talking and you do the summarizing and pointing out the salient points.

He has brought in speakers from "Naders Raders" and the corps of engineers and other such groups and their class has gone to different places. I think that's a wise choice on his part, to show the extreme and rather than biographies saying what "Naders Raders" say and what the army core of engineers say, let the people come in and give their own viewpoint and then the professor ties it in together afterwards.

This kind of a program, as I understand it, has been set up through the Coastal Area Teachers' Education Program and Bob is thinking of setting up a program next fall through the classroom teachers' program whereby they might have a seminar where students meet 5 or 6 times during a semester. Meet in various places of the state each time and there would be several different teachers who would be working with their students in various areas. I think this has great possibilities and sounds like using the very principles that Tom just mentioned to us for environmental education.

These are some of the programs that I have heard of around the state, and I am sure there are others, but again, I would emphasize that we don't have a state-wide plan. We don't even have a college-wide plan within each university or college that you all represent.

I would hope that when you go back as a representative from your educational institution, that you might be able to talk to your administrator or deans and to your college to try to get some type of a program going whereby we can touch every teacher that we are training now and in the long run that means that we are going to touch more students that those teachers are teaching.

How is it done in other places besides from the Southeast? I have a paper full of data from the AAHPER, The American Association for Health, Physical Education and Recreation. It has a council on outdoor education and camping. They did a survey, a brief one, but it shows some indication from 11 different institutions, many of which Tom mentioned earlier, that have some type of an outdoor education program and it asked them what kind of programs do you have? How are they offered to the students? What courses do you have and so on. I would be glad to let you look at the information. A brief summary of what they say is "It's different everywhere." So find out what works best for your institution and you may find that if you can find an administrator who will listen to you, that's the best way to do it.

Some of these colleges and universities, Penn State, Indiana University, Southern Illinois, Northern Illinois, Glassboro, San Francisco, Montclair, Trenton, New Jersey, and so on are the ones that were

in this study. These programs offer Masters degrees, an M.A., an M.F., a Masters of Education. Some also offer specialists' degrees, Directorate and Doctorate.

There are two different types of approaches in general that are used in their curriculum. Either an interdisciplinary approach, which I think Tom sanctioned in his speech previously, or departmental approach which is done in some places because of administrative facilities. They have a listing of courses at each degree level, and in general, those courses are in the categories of professional education, out-door education and conservation, environmental science, and social sciences. And there is a listing of the course titles for each of these.

There are many courses going on such as the one I showed you at Clemson through the environmental systems engineering department that are not really a teacher training course at all. A good example of some of the proliferation of courses that are going on in various places is shown in this Commission on Undergraduate Education in Biological Science News, March 1970 issue available from 3900 Wisconsin Avenue, NW, Washington, D. C. 20011. This is a March issue, last March 1970, that come out before the environmental teach-in in April, and the article here talks about many of the different universities that are teaching different types of courses. Here's a listing of the various courses that have something to do with environmental concern and all different types of departments. It has a great variety of kinds of programs. For example, some of the titles of the programs: Man and Environment, Ecology--The Final Crisis, Urban Ecology, History of Environmental Perception. Now if I were you, and I thought perhaps after getting a good shot in the arm from this Convention, that you would like to start something like this, write off to these people who have already set up their courses and get their course outline and their bibliographies, and find out how their course went over and how they established it. Perhaps you can get some of the background, your footwork has already been done for you. Student involvement helps to make a successful course, as most of you already know. One program was set up at the University of California at Irvine. The title of the course is called "Population - The Vital Revolution." The course was established by students in the school's biological sciences. Social sciences, engineering and humanities were some areas from which they drew the faculty members. The course outline was set up for biology majors and non-majors giving more flexibility to the course and perhaps making it more applicable to more people. Some of the many topics they discussed, this was a one semester course, were Growth of Road Population, Man and Energy, Water, Birth Control, Man and the Control of Evolution, Human Nature and the Fate of Mankind. These kinds of topics are topics that were the concern of the students, and then they went out to find someone who could talk about those topics right there on campus. And I think I have found, and I am sure you have found, too, that we don't even utilize the resources of our colleges because we don't even know what their resources are. So here's one place that they have tried it, and I think quite successfully. It's got a good bibliography list at the end of this and the names of professors from each of these courses at their various institutions that you can contact about the courses that have already been established.

One other thing I would like to talk to you about is some existing

materials. Al Dorsey is going to talk about this after lunch, but I would like to tell you about some other materials that he might not cover and perhaps you will find this to be useful to you in setting up a program or taking back to your methods teachers in your education department.

One, of course, I would push first of all is the "People and Their Environment" series that you saw last night. You all have a set and I would hope very much that you would put that set of curriculum guides in your curriculum lab or whatever place they will get the most use by your students, so that they will be aware of what it is. I think if we can get the teachers aware of this material before they go out to the classroom, then they will be more prone to use it when they are there. We have a lot of materials from various organizations. For example, The National Wildlife Federation has put out an Environmental Quality Index last year and this year and perhaps will each year in the future. Its a way of judging what the quality of various resources is; minerals, timber, water, soil and so on. They set up a little index on each of the various areas and then say how do we compare with last year's rating of this resource. This is available to educators. You can write off to the National Wildlife Federation at the Atlanta or Washington office, 1412 16th Street, NW, Washington, D. C. 20036.

Comment from audience (not identified) - there is a teacher's kit available with that, but not free of charge.

Our South Carolina Wildlife Resources Department with Roger Seamans and John Culler here, has set up some very good materials that are available. They can be extremely useful for teachers, I feel. Small single-sheet articles about various types of inhabitants of the salt water, marsh, wildlife, and so on, available free of charge. Give them your name and have them send you some information. Their address is 1015 Main Street, Columbia, South Carolina 29201.

Here is an excellent listing from the South Carolina State Library. You can get these little brochures called Inherit What Earth free of charge also if you will write the South Carolina State Library. It has a good listing of books in various areas: "Animals are Like That," "For the Birds," "Our Land and for How Long," "Delicate Balance," "Waste of Heritage," "Vanishing Wildlife," and if your library doesn't have these books, here's a good source to hand to your university librarian and say, "Be sure that all of these books are in our library." Then if you are having your students do some type of a paper on environmental quality of whatever topic they are interested in, here's a good source to give them for places to go and information to get. Again, free of charge.

One thing, if I might digress just for a moment, something I found is an effective technique, not only do we want to get them aware of the facts of environmental crisis, but then I think we want to have them put those ideas in action. Now one little thing that I have tried that seems to turn my students on, and I am glad that they have been so interested, I ask them to take some research paper that they write about from an environmental area, and to send a copy of that paper to some policy-maker. Either someone that's for what they are for or against what

they are for. To give that information to some policymaker. Now some of them send it off to Strom Thurmond, and some of them send it off to the local principal or superintendent of schools, or someone in International Paper or industry; anybody that's a policymaker in the area that they have written their term paper on, and its amazing the letters they get back and the telephone calls I get. But I think until we show students that it isn't just talking and getting information in our heads, but it's putting that information into action as an individual!

Here's another good book by Malcolm Sevan, who is one of the professors at Northern Illinois University, called Tips and Tricks in Outdoor Education. It has diagrams and it's a very handy 1-2-3 kind of thing that classroom teachers can use. It is not very expensive, you can send off to The Interstate Printers and Publishers in Danville, Illinois.

There are many conferences similar to what we are doing today and the proceedings from those conferences are very helpful. Here's a conference that was held last May at Portland State University (Oregon), Environmental Science Conference for State Supervisors of Science.

There are a lot of newsletters that come out from various agencies also, and this newsletter came out before "Earth Day" last spring. It's called Environmental Action and the office is Environmental Action, Inc., Room 731, 1346 Connecticut Avenue, NW, Washington, D. C. 20036. Subscription cost is $4.00 and I think it's probably a good $4.00 well spent. They send you a newsletter every other week and it's brief enough that you can read it quickly. This is a very good newsletter to keep on file for students who want to find current information on things that are happening throughout the nation in various areas of environmental concern. It is inexpensive and very well done, I think.

Then we have a lot of books and things that have been around for a long time but they are still good. Perhaps you are not aware of some of these books. This book is called Interpreting our Heritage and it's put out by Freeman Tilden. It's been one of the beginning books in interpretive work in the National Park system and I think it has a lot of relevance to teachers today because, again, the idea here is how do we get people to use all of their senses to make them more aware of whatever it is we are trying to teach them whether or not it is French or golf or second grade. It's a very good book and inexpensive, so you don't feel guilty about asking your students to purchase this book in your methods courses.

Now a book more directly related to outdoor education, that many of you may be familiar with by Don and Bill Hammerman is called Teaching in the Outdoors. This is an excellent book for teachers in your methods classes if you are going to be talking to them about outdoor education. It not only has a little basic philosophy of outdoor education in the beginning, but then it's divided into various curricular areas. How you can do activities in the outdoors in social studies, music, science, etc. It's a small version of our curriculum guides here in the state and very handy for a teacher to have, and I think, the students in your methods classes, and also for them to use when they are out in the classroom.

This book, too, I recommend for classroom teachers because, again, it is easy to use, quick and handy. It is called Curriculum Enrichment Outdoors and it is written by John Hug and Phyllis Wilson. This also is divided into curricular areas with just a little paragraph about each different kind of activity you could do within that curricular area. If you are working on vocabulary development, it's got 6 or 7 different things that you can do in that area utilizing the out-of-doors. In math it shows finding the percent of slope of a hill using mathematics, estimating, measuring and so on, using real activities. Very handy for teachers particularly.

Then there are lots of things that are available on the market, when you go to the bookstore, you will see many of these kinds of paperback books. On ones that Tom mentioned before some classics like "The Silent Spring" by Rachel Carson, and then they have current things coming out everyday. This environmental handbook was cooked up just around the time of the teach-in last April, and really all it is is a compilation of lots of different things that you read about in newspapers and magazines and so on, put together in one inexpensive paperback. Again, something that the students can afford. You don't feel bad about asking them to purchase it.

Comment from audience (Bob Saveland). The publishers of that handbook, Ballantine, (about four - SST, The Population Bomb, and The Peaceful Atom.) They will send those books free if you say that they are for consideration for your class.

One other thing I wanted to mention is the fact that there are some excellent slides and tape programs that have been set up recently also that are available to you. John Jackson went to a conference in Atlanta last November and purchased after he saw the program, a slide-tape program called "The State of Our Environment." You can get this on loan from John, free of charge, if you just ask for it. It's about 20 minutes long.

It is an excellent slide program. And the thing I use it for, and the thing I think you could use it for, is when you first start talking about getting aware of environmental problems, hit them with this! It's visual - you can hear what they say - you can see the picture - very well done, professionally done, free of charge and it gets them going just thinking about all the various areas. It would be very useful for any college group. I think you could use it in a high school group also, but most of you are working with college teachers.

(Question from audience) - "Who did it?"

(Jackson) - It was done by Olympus Research Corp., 818 18th Street, Washington, D.C. 20006.

(Rillo) - Would it be out of order to make a comment? You know these books and tape shows are coming out in volumes. In fact, if you were to lay down every book on the environment end to end that they would go the length of this mansion. There is a pollution of pollution materials. It almost would be like keeping up with the medical profession

in order to read all this. I have found an interesting technique. We developed our own single concept film loops and slide presentations with students to do almost the same job. They cost you a lot less money, and it's relevant because it's with the situation most people know. It is possible to do this using the movie cameras available now that let you get within an inch, or you can get involved with slides. I think you can do a very fine job and it can be a learning experience for students to develop their own tape, their own slides, and their own single concepts filmloops. I would advise expenditures of money being placed in this area, and this could become a class project, and get your audio-visual department to work with you on this. It has far more relevancy to the local situation.

(Jackson) - "Not only slides, we had one eighth grader in Brookland-Cayce make an excellent movie called "Pollution Sources in Lexington County" and he started right out with the school's incinerator which really looked bad."

Comment from audience (not identified) - "Sarah, I heard Tom say this morning that we don't want to be engaged in the indoctrination, of course we are, whether se say we are or not. This value situation, changing values system and such as this was involved in indoctrination. What I am really interested in now is, is there any organization that can help us look at the volume of materials coming out so that we will know what is legitimate and what is not. In other words, there is just a volume of this and we are naive. We might try some of these publications that might not be true, I mean some of them might go too far."

(Jackson) - "A quick answer to that would be go into the long term reputable organizations such as National Wildlife Federation, or Sierra Club or Audubon Society. All of these have tremendous educational materials and they have been in existence much longer than some of these new ones that have recently sprung up. I don't want to denounce the new ones, but the others have a long established reputation. I think he is going to say that all of these are biased, that Audubon is biased toward birds, wildlife against hunters and so on, which is quite true, too."

(Rillo) - "You know there is a group of teachers in Illinois that developed a teaching material thing like that Tips and Tricks, and the people that got the most out of it were the teachers who were involved and the students who were involved in developing the lesson plans. You know Lamont Cole from Cornell wrote an article called "Can the World be Saved?" It has appeared in books of reading six times -- same article. I am sure Lamont Cole doesn't mind, but why pick it up 5 or 6 different times in books of reading on ecology or environment. But wherever possible, if you can get involved in the generation of your own teaching material, plus you have already got a very fine series 'People and Their Environment.'"

(Jackson) - "Roger, you wanted to say something in retaliation of what I said - go ahead."

(Roger Seamans) - "The only thing that I want to say is this and we are seeing it right now more and more than we have any time in the past. And that is, people recognize that this whole environmental thing is "the thing" at the present time and people are taking a hold of this

that have a very small, narrow viewpoint which they want to put across. The Serria Club is probably the most wonderful organization. It saved the redwoods, it saved the paths of the Grand Canyon and it has done some of these things, but they can't get away from the fact that they are protectionists and preservationists all the way through. And there are other organizations that are anti-hunting and they fail to recognize the fact that we have to have the human predator if we are going to maintain this ecological balance. So I think when we start talking about teaching and teaching materials, we have to recognize the fact that some of the small groups have some very narrow things that they want to propose.

Comment from audience (not identified) - "One thing that bothered me at the time of the BASF. All of the materials came in and our schools were just flooded with this. There was no balance presentation at all on this. All kinds of material were floating around. So there is seemingly no attempt at balancing this very emotion-packed issue. This whole movement is going to be involved in emotion-packed issues pretty soon. Everyone's thought is upon the same track for the moment, accepting things like this, but we are going to find partings of the ways."

But there are individuals, especially certain writers, who have turned out materials and a lot of it has a resemblancy, including filmstrips and slide series and that's why I think you should have a screening group. I think you have the machinery for it. I think you ought to be selective in the type of materials you get, and I think if you get involved in writing materials from your point of view, which is certainly well taken, it can be presented as a learning experience for youngsters to discover for themselves that certain species of wildlife need to be harvested and kept in check.

(Rillo) - "Some people aren't thinking, because if they see it, they get what impressions that film is giving, and that's where the greatest damage is done. Everybody here would probably see errors in it - they are all thinking people who think beyond just next week or next year, but the damage that was done by that film was to the person who just gets from it what he just sees visually, without thinking too much about it."

We are working, however, with people who are going to be teachers and I would hope that in addition to the suggestions Tom made, for you John, that the rest of you see John to see if he can make these materials available to you and to help you when you are going to be doing this. But also, I think you should let the students go find out the information. They can get these sources from your library as well as you can. I use the TV programs. As a matter of fact, I have asked them to watch one program of environmental concern this semester and make a review of it. I don't think it's our job to say you have to think this way - heavens no! But to make the information available to them and hope that they will come up with their own viewpoint. Now the slide show that I mentioned before is available free of charge from John. Last week we had a man from the Bureau of Sport Fisheries and Wildlife who has developed a fantastic slide presentation and he has four more coming. He is going to give a copy of each of these free of charge to John,

which John doesn't know yet, and he can again make them available to you to use with your teacher training program. So, here are some things that are available now, but don't forget to let the students go out and find their information also. I feel if you give an assignment that has enough - you leave the guide lines open wide enough, the student will find his particular area of interest and he'll delve in - down there. Then get the class discussion going afterwards about how do you do these kinds of things with students. The same way we're doing them ourselves in classes. And then allow them the freedom to make up their own mind, as to how they stand on these various issues.

I hope that this discussion has given you a brief idea of what's going on in the state and around this area, and all the materials that you can use to help you. But please, when you leave this conference, try something different in this area in your classes when you go back next week.

Albert H. H. Dorsey

South Carolina Department of Education

We were fortunate last February to bring John Jackson aboard with us in the State Department as a Consultant in Environmental Conservation Education. I think its title in the department is Conservation Education and we have tried to bend around and hook on Environmental Education because we are interested beyond the normal definition that would be expounded by most people when thinking of Conservation itself. John has been working quite diligently with the materials that we have, and with people throughout the state who are interested in various ways in environment and conservation, and has kept abreast of laws and bills, etc. that we have had in our State and National Congress throughout the year. I think he, at this time, can bring us up-to-date at least on where we are relative to the potential of federal programs or federal funding.

I am happy to have John aboard and as a member of my staff, he's available to work with colleges and universities in whatever capacity you feel that we can best serve you in this undertaking.

John Jackson

One thing we are going to pass out in just a minute is a new Act passed in the closing days of 91st Congress, which has the short title "Environmental Education Act." You may have read about it, you may be somewhat familiar with it, you may not be familiar with it at all. Basically, it is an Act for three years which was originally designed to provide, I believe, forty-five million dollars for Environmental Education programs. The first year there is supposed to be five million dollars worth of funding, the second two years, 15 million dollars and 25 million the third year. The Act was passed and it provided for five million dollars worth of funds in the first year. However, appropriation came out to two million dollars rather than five. There are no guide lines yet as to how anybody can get a piece of the money. Earlier it was mentioned about state plans. There is a state plan which right now is sitting in my desk drawer, and one in Al's desk drawer. We have drawn up a major part of it, it includes divisions for college training, etc. and we sent it upstairs and they said wait for some federal guide lines and then we will talk about it, because right now they say there is no money in the state budget. And you in the state institutions, I am sure, you have heard the same thing, that there is very little money for anything, much less a new program in Environmental Education. So, hopefully there will be a way to get some of this two million dollars. Who knows how much will be appropriated the following two years. It can be fifteen to twenty-five million dollars each year. At the same time what's authorized and

what's appropriated is often quite different. (note: HR 7016 contains $3,514,000 for fiscal 1972 and has been accepted by both Houses of Congress 6/30/71 while Nixon asked for only $2,000,000 of the 15 million he could have asked for.JYJ)

A few other ways to get some federal money, one person in here knows. He is in the midst of it, Dr. Harris at Furman. He is helping Greenville School District write a federally funded Title III, ESEA project. (Elementary and Secondary Education Act of 1965) A Title III Project is for innovative and exemplary programs. This lets school systems set up exactly that - an innovative or an exemplary program.

In January of this year, here's a letter from the U. S. Commissioner of Education Office stating that in South Carolina there was a total of $270,000 available for innovative or exemplary projects in any one of five different areas. Such areas in part were Environmental Education, Early Childhood, Disadvantaged, and Reading. So, schools had to have a letter of intent turned in by the 15th of January and a preliminary proposal in by the 10th of February. A horribly short period of time to do any type of real, thorough comprehensive planning. Nonetheless, five schools are working on Environmental Education programs out of 16 letters of intent. Now I have been helping three schools with theirs. Dr. Harris is helping one, and I think Greenville, which he is helping, probably asked the question immediately, that the others did, "If we set up Environmental Education Programs, where can we get a qualified person to direct it?" "And can we use most of the money for teacher training?" And this is what in part, school districts are thinking, because they are looking at curriculum materials that can be used. One or two places are looking at a residence center type of approach, which was discussed a little bit this morning. One or two are looking at the community action type thing that students can do to enhance social studies and science. But all of them realize that the major need in this is teacher training. And they are looking for a good portion of their budget to go toward either hiring a full-time consultant and paying teachers for one Saturday a month workshop or evening workshop during the school year or a summer institute of two or three weeks that would have a consultant or two to come to the district to really train the teachers. Now some of you may be approached by a school in your area that's working on something like this for support or for cooperation in teacher training. So this is what you might really call indirect source of funds for your programs, in that the school would approach you. The Elementary and Secondary Education Act, also provided under the Higher Education Act of '65, again provided for some teacher training programs. There have been environmental education programs in this, as I know full well, having been in one.

Other various programs really depend upon the mood of Congress. In addition, as we pointed out, a lot can be done in Environmental Education without federal funds. It can be incorporated as a part of a straight methods course. A methods approach for social studies through environmental programs or through mathematics to environmental studies or through science to environmental studies or whatever.

So, as Tom mentioned in part, as Sarah mentioned in part, while it's

nice to have a large grant, and you know you can increase the faculty and resources and everything else with a large grant, a lot can be done on the local level without federal funds.

Comment from audience (Billy) - "One other possible source is National Science Foundation. I'm operating a program now. I have 24 teachers in North Carolina. The way the program works (this is from National Science Foundation), the program has to be drawn up, the proposals have to be written by the students. He has to turn in his plans, it generally has to be in the summer, so he cannot have a regular college load. He is paid $80.00 a week and you can have 5 to 15 students to participate in this program. The proposal has to be in by November, and he is notified in February."

(Jackson) - "Are these strictly graduate students?"

(Speaker) - "No, undergraduate students. A faculty member can be released, they will take care of this also."

(Jackson) - "Ballou, you look like you went to National Science Foundation with, unfortunately, no luck."

(Ballou Skinner) - "I planned to work with Richland County and Lexington County, teaching and follow-up with visits and meetings. It wasn't funded."

(Jackson) - "I think National Science Foundation is looking a little closer at most things because their budget, of course, is from Federal Government funds. So, they are probably cutting back as many other agencies are."

(Rillo) - "You forgot to mention two other titles. You can obtain funds, as we have, under Title I - Culturally Disadvantaged and for Environmental Education. This is Title I of ESEA. You have to identify a certain percentage of culturally deprived students within a school district. It's more money left in this than in Title III. And then another Title is II under the ESEA Act. Of course, this deals with library resources. Some schools have applied under Title II and have built up their teaching aids, books, materials, filmstrips, audio-visual, this kind of thing for environmental education using Title II funds. But these are two funds that haven't been exploited as much as the Title III."

(Jackson) - "Now could an ESEA Title I program include teacher training in environmental awareness for disadvantaged students?"

(Rillo) - "Right! Right!

(Jackson) - "O.K. So you might get back with the school in your community and approach them."

(Rillo) - "We had one that was written for migrants, children of migrant workers, in environmental education. Of course this takes out some unique aspects of environmental education that some of you might not be too familiar with. But, it was again tailor-made for children

of migrant workers. And the National Science Foundation, I kind of discovered, liked the idea of mobile laboratories. And if your district is so big that you need to convey materials and this kind of paraphernalia to wide-spread schools, maybe on a county basis, a mobile lab could be a way. I know the receptance to this. We used the mobile labs, too. In our state (New Jersey) what we have done with grants is some of the federal funds that we had come into our state, we begin to allocate. We gave out one hundred $1,000 mini-grants to teachers. They were encouraged to write $1,000 proposals for innovative ideas in environmental education in New Jersey. Of course, in other areas, too, not only in environmental education."

(Sarah Walker) - "Who gave the money?"

(Rillo) - "It came out of our State Department of Education. But they were federal funds and we called it the mini-grants. One teacher got up to $1,000 - others were completely spent for in-service training, etc."

(Jackson) - "Unfortunately, the South Carolina Department of Education does not have funds right now that it could set up any type of mini-grant program."

(Rillo) - "But the notion though, should be the job because it got teachers actively involved, you know, where they begin to think about picking up an extra $1,000 to help to do the kind of thing they had been interested in. They only had a little bit of money - what could they do?"

Comment from audience (not identified) - "I started to investigate some sources of things I wanted to do and I found it very helpful to work through/with the Development Office of your particular college or university because they know where the money is and what it might be used for. That's a very good source to have."

Comment from audience (not identified) - "I noticed that the Ford Foundation has made grants to several of the larger universities. Rockefeller Foundation has made, of course, these are elective grants, I guess they are kinds to get a good pilot project going, so you can kind of make an exception of that. But on a whole, if you can show some of these foundations or corporations that what you are trying to do is somewhat related to the organization, you find a lot of the corporations that might provide funds. Of course, some only provide money for a specification. But they say specifically when you get that money, this is what they told me about two days ago, that it is supposed to be specifically for chemistry, but now you can tie in chemistry with environmental education. If you sell them a bill of goods that what you are going to do is going to help their corporation, then environmental education is so broad, you know how to work that in."

(Jackson) - "Chemistry in environmental education, we get into water quality, soil waste disposal, air pollution problems or whatever."

(Jackson) - "National Wildlife Federation also has a scholarship

program, really for graduate students, but again, I think it's in various fields, including education. Have I missed any important or maybe not so important ones? We can get back to some of the other things in South Carolina available to teachers now, and what are a few things in our Plan which is, unfortunately, not ready for dissemination and show how it relates to perhaps the proposal you might write up to get a grant or whatever."

(Rillo) - "I think there is an important note of caution here, it might not be a bad idea to mention, and that is to get federal funds is fine and dandy and yet, as we observed the programs across the country in Title III the largest single component of area of funding was in conservation in outdoor education. Despite the fact that we had programs in reading, and Title III programs in audio-visual instruction, the largest one, the largest grouping was at that time conservation and outdoor education. Very few programs have endured the end of the three year funding period. Only a relatively handful of programs that started phasing out the first two months of operation of the first year were able to become self-sufficient. Dependence upon Title III funds is fine but unless you can pick up after the three year period or the two year period, it's over and it doesn't do much good except wet the appetite, get people all excited, only to let them down with a hard bang. And I've seen this happen, too, where we have fine resource people, programs that are generated enthusiasm. We had a Marine science program on Sandy Hook and some of the best techniques I have ever seen working with youngsters in a Marine environment were developed here and then when the funding period was over nobody wanted it, no school system wanted to underwrite it, and it fell flat. And the staff people that were there that were so high in enthusiasm were deflated. There is a lot to be said about not having federal funds, too."

Comment from audience (not identified) - "I was about to say, in your new program here, I've read it before now, you know when this money becomes available, it's 80% federal government money, you have to come up with 20% the first year, next year 60% federal, you have to come up with 40%, next year 40% federal, you have to come with 60%."

Albert H. H. Dorsey

(Jackson) - "Al, why don't we go on with the next part as to existing materials and principal parts of a model program and we will be back on schedule."

(Dorsey) - "I would like to say thank you then to Sarah Walker because she did a beautiful job of handling available materials. I am thankful to her that she did hold up "The People and Their Environment" guides as a first, because I had a little bit of relationship with that, and I am still concerned with it. I think that is living evidence, if you will, to support a statement that Tom Rillo made that as you work with teachers, let teachers do it. Teachers wrote these materials. You got a set of eight last night: 1-3, 4-6, 7-9 Science, 7-9 Social Studies, Biology, Home Economics, 10-12 social studies and Outdoor Laboratory.

These were developed in South Carolina, they were developed by

South Carolina teachers who are teaching at the level that the book is indicated for. I had first grade teachers, second grade teachers, third grade teachers, fourth grade, fifth grade, sixth grade. When you get to the broken subject areas, I had social studies teachers, I had science teachers, I had home economics teachers, I had biology teachers, and right on up the line. So, these materials are in fact written by teachers, teaching in South Carolina, who are actually teaching at the level for which the materials are offered.

I would like to go back, and since a lot of the other materials have already been mentioned, I will not refer to those. I might say one piece of material that is being offered from the state of Wisconsin that deals directly with environmental mathematics - that is a very good piece of material.

I would like to drop back and sort of bring us up on the history of what happened to cause these materials to be produced and how we produced them. I think it is important to look at how this thing came about, and to look at where it is today, and what the interest in it is today, and what the future for this type of thing might be. So if you will bear with me, those of you who have been in sessions where we have gone into this and those of you who have been with me shoulder to shoulder in the development of it. I would like to back up here to the period of around 1950-1955 in South Carolina when I wasn't here. Representatives of various agencies in the state of South Carolina who are working directly in natural resource concern, and other interested people who were not working directly in relationship to the natural areas became very much interested in becoming related in some way to the learning process for children in the schools. As you know, in South Carolina the law says that the only agency that has an open door to the public schools is the State Board of Education through its State Department of Education. Therefore, there was no immediate open door for any agency outside of the Department of Education to go in with its program designed for the students. This was known to this group of people back there who developed the idea, and I think an excellent one, that if they had a liaison person in the State Department of Education, then they, through the State Department of Education could make available to the learning process of these students the materials and the resource capabilities of their personnel. They could be more widely used and more effectively used. We have tremendous resource personnel in these agencies. So the request was made to the Superintendent of Education that he employ a Supervisor for Conservation Education. I believe this request came in 1958 or back there somewhere, and nothing happened at that time. A second request was made in 1959, close to the end of 1959, and a conference was called in 1960, in which these people were invited to come in and meet with the Superintendent of Education and in September, 1960, in lieu of employing a Conservation Supervisor, he appointed from that group an Advisory Council for Conservation Education. That council is still effective, it's still active, and it's still moving. Out of this council has come many things. They immediately saw the need for teachers to become oriented in Conservation Education so that concepts of conservation concern could be incorporated as part of the learning process. They moved to the University of South Carolina and Clemson and there received ears that listened and they established workshops for teachers; these went for a period of time. There was a

need for bibliographical materials to be made available to teachers so that they might secure proper materials to use. They began to develop that. They saw a need with the advent of ETV for the incorporation of some concepts of conservation into the ETV presentations, so several tapes were developed in the area of conservation which became a part of the South Carolina History program over ETV. So they were urgently and actively working toward reaching students in South Carolina with understanding.

I was fortunate, in coming here in 1962 as Science Supervisor, to be invited to join that group, and there was talk being done about the development of a resource guide for teachers. This would essentially be the listing of concepts, a few activities, a few resources available, etc. that might be suggested that the teacher might use as a resource book. Well, we looked at books of this nature over the nation and there was certainly content material relative to the various natural resources with other supplementary resource materials available to provide interpretation and understanding for teachers to use. But here was a resource material and resource materials go on a shelf. A teacher goes to the shelf and gets resource material. She must interpret the content of that material, she must then adapt it into her planned program of operation of her classroom. So here's a two or three step movement for teachers to get from what we wanted to provide them to the student. So it didn't look feasible that we in South Carolina should need to duplicate what was being done somewhere else. So it was suggested that we begin to look at some different ways or at the feasibility of going off on our own on an instrument that teachers might well use to do the job.

I had an opportunity to run into Matt Brennan in Philadelphia, Pennsylvania, in an NSTA meeting. Matt had done some work in South Carolina on a consultant basis, and we for a period of time, talked about conservation, environmental education, etc. He indicated there might possibly be some funding available through the Conservation Foundation to develop some materials. We discussed various types of materials and so on. So I invited Matt to come to South Carolina. I came back to South Carolina and at the next meeting of our Advisory Council, which was within a very few days after that meeting, I presented to the Council this information and I had the backing of the Council to invite Matt to come to South Carolina. He came for four days and met with approximately 20 members of this Council. We worked for that four-day period in determining what type of tool will get the job done. And we came up with suggestions relative to the type of structure that we followed here. A proposal was developed. There were, I think, five people of the Advisory group that came together and wrote the proposal. This proposal was presented to the Conservation Foundation. They did not have funds to support it; it was put in the hands of the Pinchot Institute, Milford, Pennsylvania, for their consideration. They did not have funds, but they were willing to look across the board and see if funding could be found. Incidentally, Matt Brennan was the Director of the Pinchot Institute. So naturally, he was still interested with it. He knew when the Belle Baruch Foundation was actually established, after Belle's death in 1964. This is a foundation established for research in education in areas which are related to environmental education. Matt suggested that this might be a good desk to drop this

proposal on. It was a proposal for a program by the State Department of Education at that time. In looking in depth into the will of Belle Baruch, it would have been impossible for the State Department of Education to be funded because in there there's a statement "in connection with or through colleges or universities in South Carolina." We backed up a little bit and I called Dean Savage over at the University and asked him if there was any possibility of the University and the State Department working together for a little bit. He laughed and so did I. I've known Dean for sometime and I told him what we were looking at, and he said I am sure that everything can be arranged. In the meantime, I had received a letter from the Belle Baruch Foundation asking three questions: Can this product, and they looked at the original one now, be presented or this project presented such that it would be through or in collaboration with the University. Well, after talking to Dean Savage, and he to some other people, he called me back and he said "yes." So that was very simply answered. The next question was, are facilities available for a conference writing of this type and so on, which was very easily answered. A third question was, would you accept Paul Brandwein as a Guidance Consultant to work with such a project? Well, how high can you go? Here was the Director of the Conservation Foundation. Here was probably one of the outstanding science educators in the world, one of the outstanding teachers that I know. If I have had any relationship to a genius, there's no question in my mind that he is an educational genius. So, anyway we could very easily say "yes." I sent that back in and got an invitation from the Foundation to present this proposal in person as modified to include these things at their offices in July, 1965. Now, we are started on this thing. Remember, back there in 1963? So time flies. Sometime you think it never does.

So I went to New York. I asked Dr. Holler to go with me representing the State Department of Education at a decision making level and I asked Dr. Savage to go as a representative of the University, so that any questions relative to either of those could be answered by people at a level of decision. We went and were very graciously hosted there. I presented the proposal which asked for $47,700, original proposal. I was told immediately that this wasn't enough money. There, to my first knowledge the statement was made that I would be released from the State Department of Education to coordinate the operation of this project. This I didn't know. Dr. Holler made the statement. I accepted the assignment and left there with $77,700 instead of $47,700 committed orally. I was invited immediately thereafter to the Pinchot Institute, along with 24 other people from across the nation to look at the status of Conservation Education and to make suggestions as to what should be done about it in the next decade.

I went there and met several people from several places over this nation and there's tremendous concern. I was asked to relate the idea that we had to the group at that meeting.

We moved into the University of South Carolina to carry out the development of the material. I sought recommendations for teachers from all over the state. This was South Carolina's product now, and we were going to do it in South Carolina, because I believe that South Carolina has enough capability to do South Carolina's needs.

So I didn't run across to California and down to Florida, and up to New York, and over to Wisconsin and somewhere else hunting somebody to come down here and do something for South Carolina.

Out of 250 teachers, people that were recommended to me, I personally visited 200 and interviewed them. I selected 36 people. We came together for a period of 21 days, 3 weeks. I set into the proposal a lump sum of $600 payment per teacher. This is equivalent of a month's time of a teacher. So why not buy the capability of that teacher instead of keep on asking them to give, give, give. We went to the University of South Carolina officials and they granted us three hours undergraduate or graduate credits for the workshops for these teachers. I am very happy for that decision, and Dr. Giles, we will always be grateful for the effort that was made for the project at the University because I think it was the beginning of a situation that will mean a lot to us in the future. These teachers were put on their own to scrape up and to go. We had the support of consultants from these agencies that made up our Advisory Council and believe you me, it was wonderful support.

Walter Ahearn in our State Forestry Commission back there, he and his staff were available and stayed many hours with us in the process as consultants. We had people - that was before Roger Seamans came with us - we had people from his agency with us. We had people from Soil Conservation Agency that were available and were there with us. We had people from the University staff who were available and who were there with us when we needed them. But teachers were doing a job under the guidance and assistance of professionals in particular areas as it related to concepts that would be presented.

Now, you have looked at the material. It is a teaching unit. You can open it up and teach a class from it right now - any one of you. It is not an organized sequence of lessons to be followed one after another until you cover the book. It isn't that. It's a teacher's resource guide. It is not a syllabus. It is merely a series or a group of selected lessons that may be interjected anywhere along the pattern of the program of that teacher whether it be in music, in art, in social studies, in mathematics, in home economics and what-have-you. These lessons can be used by teachers.

So this is, you might say, the initial development. We ran up a rough draft of it. I made 5600 copies of it on a copying machine; you want a job, try it. I had some part-time secretaries and we collated stacks and bales of papers. We didn't put it out to contract because we didn't have that kind of money. But the foundation kept coming along with us as we needed a few extra dollars and we justified it and projected it, they came along with us. This 5600 copies were made available to 50 school districts into 240 schools into the hands of 2,000 teachers, and we gave her a trial run for the 1966-67 school year with feedback sheets for every lesson they used. In the summer of 1967, on the basis of the feedback from these teachers that used it before, and on the basis of a little additional money that was given us along the way, I called back half of the original writing team to revise. We revised the manuscripts, and we were coming down to a rather close point because a part of our

grant money had been set up to provide for publication and distribution, and we didn't have enough. We were hurting a little bit. And so I came back to the state saying that we were going to have to have some more money some way, but the state didn't have any money. They projected that they would have, but then when the time came, it wasn't there. So we were hurting again. But in the meantime, a representative of Doubleday saw a copy of our manuscripts that had been sent to the Executive Secretary of the Foundation. They got hot and bothered about it right away and came running down with an offer to publish and vend these materials. They were raring to go! So we ended up contracting with them to publish and vend. In the process, the money that was in the Foundation for us to do the publication and dissemination, I begged the Foundation out of that money so that I could use it to buy a copy for every teacher in South Carolina. I said we were going to get it published, and we are going to get it disseminated anywhere you want it, so now why not let me use that money to supply my teachers in South Carolina. They agreed to do it. And as a result, I bought 30,000 copies in the contract right off. Well, here's a publisher, he's already got 30,000 copies sold; he's off and running. They made it available in April, 1969. The printer distributed it. My office worked out all the details and tables of numbers, etc. and supplied them to the publisher and to every superintendent in South Carolina the number of these books necessary for the number of his teachers on his report last year for every school in his district. I sent them to the superintendent's office directly from the publisher because I didn't have a place to house them, didn't have the labor to repack them and get them out and etc. Believe it or not, gentlemen, there are some of the superintendents that still have them stacked in a corner collecting dust. Now this is a rather hard statement to make, but facts don't lie. Sometimes liars figure.

Question from audience (not identified) - "Are you sure they are all still there?

(Dorsey) - "No Sir! I am not sure they are all still there, in some instances they are not, they are very definitely not."

(Jackson) - "In some instances they never got to the teachers; in other instances they got to the teacher and the teacher has retired or quit because she became pregnant or something else and that teacher has carried the book off with her. In many instances they are still in the classrooms.

(Dorsey) - "But in an effort to try to get these materials in the hands of teachers, and before students, and into the classrooms, I held five regional workshops of one week duration in five different areas of the state. I personally conducted them with the assistance of consultants from the various agencies of interest to conservation. I set up a week's workshop where for the first hour in the morning, I had an agency representative present his agency, what it was, what it did, what it could do as a resource agency to teachers in the schools, what materials were available through that agency, etc.

Mr. Ahearn worked with me on these. Someone else from his office worked with me, various ones of them, but we had a representative from the Commission of Forestry, one from Wildlife Resources Commission, one from Soil Conservation Commission, one from National Forest Service, that went to four days and on the fifth day I made a feeble effort to tie the four days together and throw human resources in on top of the natural resources and grind out a little bit relative to economic resources and at least expose sociological resources. So we had a pretty full week. I thought we were going "great guns" and I think that those teachers that did participate with us in these workshops have used the materials, they've moved with them and have gone with them. People like Sarah Walker have run into the materials and they have been interested in the materials and have used them.

These materials, to my knowledge, have been reviewed by the country of India, by Israel, by Argentina, by Central American Curriculum Development Agents, by the Educational Program in Guam, and Saipan in Japan, and in five of the provinces in Canada, and have been at least received by every state in the Union.

(Dorsey) I have been recently informed that the country of Venezuela has asked for a Spanish translation of this material. I was asked in August if I would accept an assignment to Venezuela for three years to work with the Commission of Education there or his counterpart to implement a program in environmental education in Venezuela. I like South Carolina and am not interested in Venezuela right now. I am happy here.

Some of these materials have been adopted by the State Board in California. They are being considered by several other people and several other states. As was announced before, the Garden Club of America has taken as a national project, through their 15,000 club programs to make these materials available in every state in the nation.

The royalty is being paid, but it is going right back into the base source from which the money came to do the job. I wouldn't hesitate now to ask the Baruch Foundation for another grant for something if I run into a situation, because I feel like that somewhere along the way at least our project here will have done some of the things that that Foundation was established for, and that is, to spread the good word of conservation, so to speak, and it is sort of dropping back a few coins in the mill as we go along.

Comment from audience (Dr. Ballou Skinner) - Last summer I taught a field course at the University of South Carolina at Conway, and last summer Clemson campus and Columbia College campus and it's entitled "Science in the Elementary School" and it's a three hour course with 34 to 35 contact hours. Now I tried to take at least from 9 to 12 hours in some kind of conservation education with the elementary teachers. Some of them are using your materials and we try to put perhaps 9 to 12 hours in which we go through some of your units which they find to be very helpful, because most of the teachers do have it available, some have to look.

Comment from audience (Dr. Lawrence Bryant) - If these books were

sent to superintendents alone, there's a good likelihood that the laboratory schools on state college campus didn't get any because it's not under their control.

(Dorsey) - This didn't take up the full 30,000 copies. There were only 23,000 teachers, so there were 7,000 copies left for every elementary and secondary school library in our state school directory to get a set to go in a professional shelf of that library. Also to each college and university training center program that requested the material, I sent it to them.

(Question from audience (Dr. Bryant) - Do you still have any more material?

(Jackson) - Quite honestly we've got very few left. The copies you were given the other day were compliments of the publisher. In fact I had to write him and said, "we're having this conference, there will be 20 people present involved in training teachers, most of them from South Carolina interested in the materials. Can you send us 20 sets?" And this was a complimentary thing from the publisher. Our supply is limited - we couldn't have given out 20 sets.

Now what is the future of this and where are we going from here? The future use of this material I hope looks bright because one of John Jackson's responsibilities is to see that these teachers know where it is and use it. He's on my staff, so I figure he will be out there in many situations.

Another thing is this. I happen to be assigned as a member of, I guess you might call it, a Curriculum Advisory Committee to Doubleday and they are very much interested now in looking at the potential for development of student materials. This is a teacher's guide. Look now at student materials and manipulative kit type materials that students could use and be involved with in the learning process and so on. Some of these are being developed and will be available shortly. We are interested in soft materials, shall we say, paper materials that might be used for individual leveling of their own capability and study. Different levels of capability within the classroom can be satisfied to a degree by some of these program materials. These are possibilities, I don't know, but we are looking down the road. We have a tool now for the teacher, let's find something that the teacher can supplement this tool with and at the same time that students can use and go with. So, we are looking down the line at that. We are looking, I'm hoping, not too far ahead until we do a revision of this thing because I can see parts of it that need to be changed considerably. I can see parts of it that need some addition and some deletion and so on.

(Jackson) - Why don't we see if there are any questions up to now before we get into the Steps of a Model Program. Do you have questions on the material, it's availability, it's use?

Question from audience (Dr. Bryant) - Up this time, do you have some idea about how well these books are being used in the schools? Is there any way of evaluating up until this time?

(Jackson) - Not really. If you want a percentage as to what percentage teachers are using it; no, we can't give you a percentage. Teachers who have seen it appear on the whole quite enthusiastic about it. Unfortunately, as Al said, some superintendents still have it stocked in the back of their office. Some teachers have walked off with it and the school has not ordered more copies. With reorganization of schools this fall, some copies haven't been found since the schools reorganized. So, we will put it that teachers who have it available appear enthusiastic about it. Especially teachers who have had some instruction in how to use it. There are a lot of teachers who have it on the shelf, or on the library shelf, who have had no instruction in how to use it and they aren't using it. Once they have seen what it is, how it can be used, etc. they usually use it extensively.

Comment from audience (George Dainty) - One of the things that I've often found, and I suppose a number of others have done the same, is that as far as teachers' guides or curriculum guides are concerned, when they first come out the teachers take a look at them and then they do go in the bottom drawer. And you have a hard time coming around a year later and finding out where these curriculum guides are.

(George Dainty) - I would like to comment on this matter of foreign interest. And that is, I first came across these materials at this International Working Unit. It was especially being promoted by Bill Taylor of the Western Office of National Park Service, and he's the one who was really selling the outfit. Of course, very often you will get foreign interest from great distance as a prophet may be without honor in his own territory. But I think there's a change - the students' materials coming along afterwards. This is where you really get an effective change.

(Dr. Dean Murphy) - Would you like some feedback on availability of the guides to teachers?

(Jackson) - Of course.

(Dr. Dean Murphy) - We have student teachers out in 15 different schools right now. I can find out next week whether they are in that school.

(Jackson) - May I add one point to this? I've done workshops around the state this year. I've had student teachers in a few of these workshops, and on at least two occasions, the student teacher in the workshop has come to me afterwards and said in so many words, "Why haven't we heard about or seen these in our undergraduate training?"

Comment from audience (George Dainty) - Just one comment on the material itself and that is: That section on the ants in the primary unit, personally I was interested in that because this is very illustrative of an interdisciplinary approach. Because even through ants you can utilize materials from language arts, you can teach social understanding as well as things from natural science.

(Dorsey) - We had almost a disruption of a classroom situation in one of our schools in the state as a result of teaching the honeybee and socialism unit there. This enterprising teacher brought in the classroom a window beehive and here we begin to study and they organized a class; class officers, etc. and they built up a structure of government and activity in the class which sort of compared to the structure of activity as they studied the beehive. Then they moved out of the class to the community and they related the community structure of government division of responsibility and labor, etc. to the beehive. And everything was going beautifully until they got over to the end of the community study pretty well and all of a sudden some wild bees discovered the hive. And believe it or not, we had demonstrations, we had riots, we had turmoil in this window hive. And some of the few that were left in the initial attack got out, went back and gathered more strength and came back and before we finished up and finally went to an apiarist to come and clean out the wild bees, we were fighting the Vietnam conflict right in the beehive in the window. These kids went home on fire. There were over 2,000 people of the community that visited that classroom and viewed that beehive. Now, what kind of interest is that for a community and for a group of children to look at themselves in a community relationship and to follow it right on through from step to step? This happened! Meadow Strickland, one of the writers of this book, was the teacher. She was one of the writers with me. She has won several awards for outstanding ability in the field of teaching from Freedom Foundation right on down.

Model Programs - Albert Dorsey

(Jackson) - A model program for EE has various steps, Al will give his opinion and then the rest of you will be welcome to give your opinion of what you think a model program should or should not be.

(Dorsey) - I want to elaborate on some of the things that Tom Rillo said. I was priviledged to have an opportunity to be invited to sit on an Advisory Council for the Commissioner of Education last May when a lot of discussion was done relative to the National program for environmental education. There were 15 of us there. I'm not in full agreement with what came out actually as shown by this act, but we were there discussing the bill and potential possible amendments and so on relative to it. There we looked at some depth, some of us at least, in what a program of environmental education should be like. I have my own version of what I think it should be like, and I've had this sort of thing in the back of my mind for several years.

Here are some of the things I see in an environmental education

program, and maybe the same type of steps that you might see in several other types of programs. I see a first need at material development which we have attempted to do, and which we have, we think, a reasonable facsimile thereof. Particularly, for teachers' guidance to begin with. Because if we were to bring teachers into a training situation and begin to work with them in the teaching of a particular area, and we did not have materials available to give them some guidance into that area, we immediately have hit an obstruction. If we have materials and then bring our teachers in, in a training situation, so as to orient them to the materials and the use of the materials, then we have moved. We have taken a second step. So, we have attempted to provide some teacher orientation, and some teacher training, but we have not been able to provide nearly enough. We have found out from that, that there are other things that are needed. Supplementary materials for teacher use and student materials which have been mentioned here. I've had an opportunity to be in conversation with several people: The Director of the National Forest Service, the Director of the National Science Foundation, and the Office of Title III ESEA and Title III NDEA, before ESEA replaced it, in discussing what is the potential of the development of a center which would be the core unit of an entire program of environmental education for a state.

And my idea follows somewhat along this line: A center located in the state that is accessible to all parts of the state; a center that would provide resident housing for training participants; a center whose program would be developed by representatives of the teacher training institutions in the state, developing program in those areas of their interest, social studies, science, a program which could be agreed upon by the colleges and universities in the state to the point that if one participated in that program, at that center, talking about a teacher now - either pre-service or in-service that that teacher might take credit from any institution in the state in which they were working, regardless of whether they were on campus at that institution or not. If it's a program that is designed by, developed by, and in accord with the representatives of the various colleges and universities, then it should be a program for which credit could be granted from any one of the consortium of universities. The faculty for such a program could be on an alternate basis of available faculty members from the different institutions, or a staff faculty which was acceptable to the standard requirements of the colleges and universities of the state, much as our extension courses are taught now. That a program be made available such that if an on-campus professor wanted to bring an undergraduate class of 20 students to the center for a semester, to go through this program or whatever period of time that the program demanded, that facilities would be available there for that professor to bring his class to that center and there relate his subject area to an environmental or wilderness setting, preferable a wilderness setting that we might find. I'm not talking about an urban center now, because South Carolina is not nearly as urban as many other states. I'm talking about South Carolina. Sixty-five percent of South Carolina is under vegetation. Thank God. We have enough national forest in the state that a wilderness section could be found right away. I found out that an area could be provided on a long term lease for educational purposes. In talking with NSF, I found that such a program could be funded. In talking with Title III, I found out that they would be amendable to funding because this is an

exemplary type situation, it isn't funded. There was one headache in going along the way in looking farther to see what could be done, buildings for housing purposes were not available. These steps are some that we have actually moved to more or less investigate, no action has been taken. In the program as I see it, it can be a center which provides a program for undergraduate study, a program for graduate study, a program for inservice training of teachers, a program for on-sight visitation and training, and here is where I would like to point at the statement I made awhile ago with Tom Rillo. I understood, maybe incorrectly, that he was questioning the on-sight situation in that it only allowed a week with a student and a teacher in the on-sight situation, and they ought to be putting their time in back at their local location. They ought to be studying there. They ought to be observing there. But an on-sight program entails many more things. It entails the staff from the center working directly with teachers and students in the local situation to determine the needs relative to environmental education there for their particular week's training. They have a week's training in observation, they have follow-up supervision by the staff from the center which would allow for a much greater experience than Tom referred to when he came across that. Now I know he's not in disagreement with me, and I know I am not in disagreement with him, but this point I wanted to elaborate a little bit more on a program of on-sight or on-sight nature. And this is not nearly all of it. They could spend the day on an on-sight program here, but it would be a program in which the staff from the center would in a sense be giving supervision to teachers out in the field around the center area in development of actual experienced programs to be presented to the teacher and student at the center itself. With maybe a week of on-sight there. It may be at a particular grade level or it may be in a particular subject area at whatever grade level. I can see in connection with such a center, the opportunity for an expanded manpower development program in which technicians and aides that are being cried for, shall we say, in many situations now as in pollution, pollution monitoring, etc. that there could be a program that would provide for a considerable amount of aid and para-professional training or technician level as it relates to environment. I can see where this could be a center that would provide an in-the-field experience for career professionals who are studying in a campus situation who might want to relate some of their study to the actual environmental situation itself. They might want to do some research from there in the application of facts from a classroom setting. So, a program that would be widely expanded across what I consider to be the total need for environmental education. I can see field laboratories provided for considerable amounts of laboratory type research training there, so that it wouldn't completely rule out the potential of actual live research being done on a supported grant by a retired department head in an area of environmental concern who is retiring, who has some years left that he wants to spend in a worthwhile contribution to knowledge. Supported, he would do his research and the center would be able to publish this research and thereby contribute to the world-wide field of knowledge, if you will, as a research center. Now this is a pretty wide extending type program, but this to me brings in various steps of concern that I have, that I feel should be incorporated into a total program of environmental education.

I would like to see what your reaction is to that type of thinking,

I would like to see whether or not you think, you college and university representatives think that the feasibility of trying to look at a cooperative consortium of the program of this type might be a dream, it might be a foolish dream, it might be a foolish thought, I would just like to know just what you think about this type of thing. Do you think there's feasibility in attempting to develop toward this type plan?

(Jackson) - Who wants to say it's feasible, it is not feasible, or have questions about it, whatever?

Comment from audience (George Dainty) - One of the things I note is that one of the motivating factors in getting people to follow a certain program, there are certain things such as requirements in connection with that, state certification requirements. Without state certification requirements, are you going to get students?

(Jackson) - You are saying, how can we get the center certified?

(Dainty) - You can set up program, but you have to have students coming into it.

(Dorsey) - This is true. Look at some 20 to 25 colleges and universities that have the availability of this center, each one of them has a certification requirement that is met by all enrollees, and if that college brings a class to that center, it's bringing it to that center in the same aspect as it would be if they took it to an extension center which is a certified and accepted program. So if it's a program developed by a group of colleges and universities that now have certification of programs, I see no difficulty whatsoever.

Comment from audience (not identified) - I have a point for whatever it's worth. I was just fixing to say something along that line. We studied this situation in North Carolina, we saw that we were not getting many students in training pre-service or in-service and therefore, we attacked it from this standpoint. This is a bill, the title, an Act directing the State Board of Education to conduct a study as to the feasibility of introducing to the public school systems curriculum construction with environment and natural resources and appropriating funds for such study. The title of the bill passed in the last legislature was like this; the State Board of Education is directed to study the needs and to formulate proposals of laying to the introduction of the curriculum of the public school system of North Carolina a study of environmental natural resources, through the addition of courses of study; through the inclusion of existing courses of study. This bill passed the last legislature and immediately the state superintendent of public instruction appointed a Task Force to study this feasibility and I served on the Task Force. I have a copy of our report and it's already come up in the first legislature and our requirements are going to change, and I bet a $20 bill against 1¢ that that will pass through this legislation. In brief, it is this; that the certification requirements for the elementary teacher will have 9 semester hours of science, three of which would be in "Environmental Education and Natural Resources."

(Jackson) - So you are making environmental education part of science - is that correct - you would not incorporate social studies?

(Answer - not identified) - In science, for the secondary teachers, it would be an interdisciplinary course in environmental education and natural resources. I think we can talk about this all we like, but unless we get certification requirements, I don't believe many future teachers are going to have very much training in environmental education methods. I don't care what sort of study you have, how much materials you have, unless these certification requirements are nailed down so to speak, I am afraid they won't be there.

(Jackson) - You think, unless there's no legislation requiring it, it won't be done?

(Answer) - I'm not sure. That's what I think.

(Jackson) - O.K. One man's opinion from North Carolina.

Comment (Dr. Sylvia Swinton) - I don't think that will be such a big problem in trying to reconcile training with credit for certification from the standpoint that I believe we've loosened up a good bit now in the state in terms of the various kinds of workshops and institutions that we are having. If the college can describe it so that it fits into what these requirements are, they take it for the state department first. At least, that was the understanding I had this summer. Even though our institute wasn't titled anything that would have been exactly what any of the required courses were, but in describing what we did in our activities, we could give credit for a particular course that would be given credit for in acceptance in the state department for credit. I am very much interested.

Question (Dr. Lawrence Bryant) - I wonder why you thought about organizing and getting people from the various colleges and universities to sponsor this program, rather than for each institution of higher learning to develop a program?

(Dorsey) - I didn't indicate each one should.

(Dr. Lawrence Bryant) - No, I said I wonder why you passed up this.

(Jackson) - If each one develops their own, the cost is so much larger. If the colleges can contribute jointly toward one center that they can all use it's cost sharing type thing.

Question (Roger Seamans) - Does that limit the number of people that would be affected?

(Jackson) - It would limit the number of people up to a point. I mean you could serve quite a few on a cost sharing type thing. A school the size of USC may well have to have their own center without a doubt. Especially, if they are going to bring all 18,000 students through it. At the same time, smaller colleges could have a cost sharing type thing, or initially begin with a cost sharing one, see how it works, see which colleges use it the most, and perhaps some would then want more facilities, in which case they would have to expand out.

Comment (Dr. Harry Freeman) - We have to face the fact that these prospective teachers are nothing but students, and the first thing that

students look at, I don't care who they are with very few exceptions, is what are the basic requirements. And students are now active all over college campuses and working with faculty groups on rewriting college requirements. I know the college in Charleston is in the actual writing of college requirements for the brief, we have students on committees that are working on these things. Now maybe it's that way in courses right up to requirements for certification. I don't know whether students are consulted or not, but I think it's a very smart idea. We have gotten some of our best advice on what a student thinks he should have. Now we don't listen to all of it, but certainly a lot of it is very good. And they are writing things they think they should have, and they are not going to fool around with things that they don't think they should have, unless they are made to do it of course.

(Jackson) - Are they including any of the environmental courses?

(Dr. Freeman) - I don't have that at the present time, but I think we have got to get the student interested in making that a requirement. Otherwise, I don't think they are going to participate.

(Dorsey) - We have at the present time, an Advisory Council that works with the office of certification and sits in "Advice Capacity, shall we say, as to what shall be the certification requirements for teachers in such and such an area.

But now lets look at this Council, who is it? Approximately 60% of it is made up of your deans and administrators from the colleges and universities in the state, about 30% is made up by your superintendents and principals and about 10% of it by curriculum oriented people. No students.

(Dr. Lawrence Giles) - I was just thinking here, the opposite direction of thinking from what some of the other statements have been. Now, I know you are saying from the politics of it, you would almost have to get this as a requirement and written in, but the movement on our campus has been the elimination of requirements, rather than the inclusion of more requirements. As a matter of fact, we've had a fantastic change in the University there relating to arts and science requirements. So much I suppose, that the difference between two years ago and next fall will be a matter of at least 30 credits, I imagine, that they could take over to College of Education if they wanted to. Let's just put it this way. Up until last year, if they wanted to certify to stay in arts and science and certify in education, they would have had to take another year almost in school to accomplish both. Now they have so many electives because they are not requirements. Another thing that happened, when we put in our MAT Program, they said to the universities, you develop a program that you will swear by, and we will accept it. That's the trend now. Instead of the State Department and the Counselor and the Board and all saying, we are going to put more requirements in, they are going to say, we are putting less in, and I will get back to the opposite of the others, I think that the only hope for you is to make this so vital that you don't have to use legislative means to get them in here or your movement is no good.

(Dorsey) - It has to be its own drawing card. I can't see anybody forced into it.

Comment (not identified) - Now there is another step beyond that. School districts are undertaking this inservice training themselves, they grant the credit for certification and the college is by-passed.

Question (Sarah Walker) - Do you recommend that?

Answer (unidentified) - I think they find, Maryland for example, that if we want to say Montgomery County, that they can shape up programs to fit their needs more effectively than could the University of Maryland, so the state recognizes that credit for certification. But this is the beginning of the movement. There are other areas too, and in the big picture, teachers are going to determine what is being taught, how it shall be taught, and when it shall be taught.

(Sarah Walker) - If their administrators will allow it.

Comment (not identified) - Now the administrators are buckling. You go into these states up there, I could site Pennsylvania for example, the superintendents, principals, used to say "no"; school boards used to say "no"; now they ask teachers, what do you need?

(Dr. Giles) - Our young lady up there (Sarah Walker) asked a question that I think should have been asked too, do you think this is best? The answer is "yes", it's best for the time being until we shake some of us in the colleges to be a little more flexible and a little more innovating, and they are doing it. They are beginning to scare the daylights out of us now by developing some programs themselves. But I think the ultimate good will come if we shape up and adapt so we can really help the schools. Right now in many of the states, they are so disgusted with us at the college level that they are going to develop their own program and not draw on what we can offer. But now some of us are awakening to that fact and are starting to try to make ourselves available and flexible, so if they don't divorce themselves from us entirely, then they can utilize us. I think we have made a big step at the University, and I think others too, by demanding more flexibility, and I think it's all going to change a lot and the students are demanding relevant programs. And so the universities are looking at themselves and you would be amazed at what the old fogies of us can do when the students say, "all right, analyze, and see what you have."

(Jackson) - Can I put you on the spot and ask a question? From what you have heard today, do you think environmental education programs would be relevant, would be accepted by the students, are necessary----

(Dr. Giles) - Oh, I think it would. As a matter of fact, I think it would, and I talked to numerous people from various departments on the campus and they are really needing the man of the white horse, you might say, someone to come in and be the leader to develop a program there on the campus. Al was talking about people from two departments going to see him. There are people from several departments saying how are we going to get together and the students would want it, if they find out that it wasn't a little course lost over here isolated. They want to tie some things together.

(Dr. Rillo) - Do you remember that television series where they were interviewing undergraduate and graduate students on current issues

of concern, and they went from one interest to another in a very quick period of time. You were out in California, you were in the mid-west, and you know there is a correlation. The first topic of consideration was the Vietnam War, the second was social unrest, and the third was environment. Almost - to the campus, right to the campus, every student. Of course we all know that they are intricately related in many ways. But they are concerned. This environment is not something that they are not thinking about.

(Dr. Swinton) - I think the reason that so much has been done out in inservice is the fact that we are admitting we haven't been sending people out ready to do the job. And we are looking more at teacher education as the student becomes so aware of it his senior year, and then he really finds out, oh, I really should have been doing something for four years. We are looking at it really as a four-year period for training, involving him in the environment all through the program, and in doing that, I think maybe we can get the student involved in environmental education.

(Dorsey) - There is one aspect of the teacher training situation. I've been on both sides of the field. Two years at the University of Virginia and then I've been down here for several years, but there is one aspect of the teacher training situation that the college professor is in a distinct disadvantage. He does not have an opportunity to personally observe the deficiencies of that teacher in the classroom. Therefore, he has no opportunity to structure a course straight toward the alleviation of those deficiencies. They still got the hardback book up there, the theory, and some application, and so on without the benefit of direct observation to point at specific deficiencies.

(Dr. Charles Hirshey) - Well, initially I wanted to ask what was said here. I think as soon as the colleges adopt the public utility concept, 'what services do you folk need in the public schools?' Then, we will start to resolve some of these problems. And in the process, our philosophy changes and we become much more of the service type of institution. I think we become sensitive to the needs of the teachers and so on. Now, regarding these statements made here, I think college people are a little more sensitive to this situation perhaps than that statement would leave us to believe. Because we have all kinds of internship programs, we happen to have one MAT program and our people get out there. I think they know what the score is.

(Dorsey) - How many people are involved though? I am talking in general - a college faculty - how many of them,a few of them do. There are exceptions to the rule, there are a few of them that do.

(Dr. Hirshey) - It's a small percent. That's true, but I think the ones that have the greatest impact on those teachers do have the contact.

(Dr. Rillo) - I agree with the gentleman from the Citadel. We teach a 12-hour load. That's three classes. It's not much of a problem to get out in the field. I make it a point of being out there once a week. I work with the kindergarten. I was telling Dr. Swinton, I worked last week with the kindergarten class outdoors. Next week it may be a sixth grade. He's got a Ph.D. Teaching the sixth grade, he's in the

elementary education department. He's been out of it for a while, so he has an exchange thing going. You are right when you say some never leave their office, but there are some who do.

(Dorsey) - Yes! I am not discrediting that, but I'm saying that if a greater opportunity were afforded more college faculty people to actually observe the deficiencies that these teachers have, then they could structure courses to try to alleviate these observed deficiencies, and get to children. This is my feeling.

(Dr. Rillo) - Doesn't the University have to have a sort of service concept philosophy, a service to a community? One University I was at was like this. Everything was service to communities, whether it would be in criminology, whether it be in outdoor education, we were constantly service oriented.

(Dr. Freeman) - I still think that environmental education will have to be counted as credit toward certification before you are going to get students to move into it. I will say to Dr. Giles, I am very glad to hear about that more open door policy, because I do remember students in the college of arts and science were refused courses in the school of education, because they were not in the school of education, and I had to finally take them all the way to the department of education to get permission to go in an education course so they could be certified to be teachers. So that's great.

(Dr. Giles) - That's all changed within the past few years.

(Dr. Freeman) - But I really believe if you don't make it under certification, necessarily, you might say this is an optional course.

(Jackson) - O.K. Then you are saying it could be an elective, not necessarily a requirement toward certification should be given.

(Dr. Freeman) - "Right."

(Jackson) - I think we all agreed on that. I think part of the discussion was whether it should be mandatory or elective. Not too much whether credit toward certification should be given.

(Terry Kurpius) - It occurs to me that some of the dangers of certification that you have a tendency to put environmental education in some departments and sort of stick it there, and those people have got it and you don't end up with any interdisciplinary sort of thing at all. And that seems to me an inherit danger in requiring this particular course. It's not the nature of the University itself. We're moving in that direction, I think, with more interdisciplinary activity.

(Jackson) - Excellent point. Does someone want to say what his or her University might be able to do in that case.

(Comment - not identified) - There is another danger, too, looking at the other side of that. If part doesn't go in certain areas, it might be like some of the stuff that's coming off the press now under the name of environmental education. It has no more ecological principles

to it, you can throw it out the window right quick, so we want to look at both sides of it to be sure they do get some ecological principles along with the other.

(Dr. Hirshey) - In South Carolina, we are going to take a look at these common learning requirements in the first two years. I think it's going to be opened up before too long and it might be wise for us to inject environmental education into this battery of the first two years as a requisite for everybody. Not just for certification purposes. Substitute that in place of biology or something else there. I think then we would touch upon every student who wants to graduate. They would have to have this in the battery of common learnings.

(Jackson) - Perhaps instead of saying substitute it for biology, give it as a required course but give science or humanities credit, depending which way you are going with your degree. But it would be the same flock of students' like I might be sitting here, and Tom might be sitting beside me in the same class, but he's getting science credit and I'm getting humanities credit, but it's the same professor, the same course.

(Dr. Hirshey) - Too many students are missing it. I know, I happen to be on this advisory committee and it was announced at the last meeting that there has been a request to open up the first two-year requirements and I think this would be an opportune moment.

(Jackson) - Can you put your word in to this advisory council?

(Dr. Hirshey) - Oh absolutely, I will.

(Dr. Ray Derrick) - A follow-up on Dr. Hirshey's, I work with the Ford Foundation in the community college in Appalachian, and the community asked for this to be put in the first two years. The community was the one that came up with this, and it fits in perfectly.

(Bob) - One of the things I note here, and this is sort of drawn out here, it's where you break the chain, you know; there's the curriculum which they take, the certification requirements which they take, teacher training which they take, and around and around you go. But I think what we are doing is infringing upon this from all sides really. And with regard to professors being out in school, every member of our department, including the department head, gets out following student teachers around. That's a situation where you may only be in a classroom for an hour. What you ought to do, probably, is spend a whole quarter there, eight hours or ten hours a day to really get the feel of it. But last week I was in a classroom in Augusta in Richmond Academy, and the teacher was on Louis XIV, the War of Spanish Succession; as I am driving on down to Savannah, I am thinking now how can you fit the environment into this, and it occurred to me, to tell him why is not too different from "what's good for General Motors is good for the country."

Question (not identified) - Have you got any idea where you might like to locate that center?

(Dorsey) - In playing around and kicking around and so on, we have absolutely no authority to go on or anything else, but we do find that

there are some areas located in the state that have been brought to the interest of the agencies that own the land and so on and they are beginning to move toward the development of this type of center. I don't know whether I'm at liberty to say, but I know from my own experience that there have been some plans looked at by the Clemson University on a tract of land it has in the development of a possible center for the University in that area of state. The National Forest Service has looked at a particular area of the National Forest near Newberry, with some interest in beginning to develop that so that it might fit into this type of use. There are some state properties, properties owned by the state that might well fit themselves in the Coastal Plains area. So, we have no specific and direct authority to say that we could locate here, there, or the other place. If we were to go back and look at the National Forest land from the standpoint of a long term lease, they've indicated any area that you wish to select, and you know where the National Forests are. There are some of them up in the northwest corner, there are some on down between there and Columbia, there are some northeast across from Columbia, and some down here in the Coastal Plains area. So it would depend upon, actually, the direction that we have to be steered in if we are allowed to move to get anything done as to what location would be selected.

(Jackson) - May I add one thing to that which is somewhat related to this. The National Park Service has come out with some environmental education materials. Some of it is trying to be used at Kings Mountain National Military Park. George West is the ranger there. He's contacting public schools in the area, said that the facilities are available, that you can come up on day trips and use the land, that they will help the teachers, hand out material, etc. I believe the ranger in charge at Fort Sumter is operating a similar program. I do not know for sure, but if you are in that area, stop by and check with George West who is the ranger at Kings Mountain, not state park, but the national park.

(Sarah Walker) - I might just add briefly that the facilities that Al talked about at Clemson, the Recreation, Park Administration Department has been doing quite a bit of work on a plan for facility in the Clemson force along Hartwell Reservoir and this will be a research laboratory to be used as a place of interdisciplinary study. Clemson is very fortunate to have lots of land right where they are located.

(Tom Rillo) - What happens outside of South Carolina can sometimes be a great benefit to South Carolina, and I would say that if it becomes a charge of either the council to look at what is happening when environmental education or outdoor education has been mandated and see what happens. For instance, in New Jersey, that would be a good place to find out, because something is happening there and it's not positive, it's a result of something being mandated. Same thing is happening at Northern Illinois University at Fairfield campus where you have tremendous student growth; there they had to curtail a program from four years to a two-year program and now maybe back down to a one year program. And find out what is going on in Greenbay, Wisconsin. Then talk to Bill Hammerman and learn about his difficulties in San Fransciso area, and then profit, profit from this research and then do your planning. I think you would be much better off if you would do so.

(Jackson) - Can you elaborate on it?

(Rillo) - In New Jersey in 1956, we mandated every state college student in the six state colleges would spend one week (5 days) at the New Jersey state school of conservation located in the northern part of our state which is comparable to your northwestern corner, in a resident facility. Now there was some support by some college presidents and a new faculty, but a great deal more non-support. But they had to do it anyway because the Commissioner of Education at that time got it mandated and so it got started. But when we had a change in administration in higher education not too long ago, we got a new Chancellor, and there was a shifting and then things began to change. All of a sudden, you began to see colleges pulling out of this program which the students felt was wonderful, but the faculties didn't really appreciate this and saw it as a chance to get back at some other kinds of laboratory experiences, you see. So now this faculty which was in a sense like a consortium was dependent upon the revenue because there was $5 collected each semester from each student which gave approximately $4,000 to $5,000 a year, about $40,000 per college, and that multiplied times 6 would give a nice sizeable piece of money to operate this facility. Now when they started to pulling out, the facility is in trouble, financially. So a mandate is not always the wisest thing to do if you don't have full cooperation and understanding of all the departments and all the disciplines are going to be involved.

Now Northern Illinois University had a program that started with the freshman year, sophmore year, junior year and the senior year. As freshmen, they spent 2 days there, as sophmore 3, as juniors 4, and as seniors 5, so a pretty good total. And they worked with youngsters in the junior and senior year. Now, as the college of education grew larger in Northern Illinois, the facility couldn't take the student growth so they cut back the freshman year, then the sophmore year; now, they are thinking about doing away with the junior year and so this is something that is happening there, with tremendous growth, but no growth of facility.

And so what is happening down in Greenbay, Wisconsin. It's this interdisciplinary institute idea that they claim they have out in Greenbay. Is it working?

Is Prescott College with its outward bound requirements for every incoming freshman really working out in Prescott, Arizona?

You need to correspond with these people and you need to get some input that will help you as you begin to plan what Al has in mind, which is a tremendous idea. And really, he and I are not in disagreement. In fact, what he calls "on-site" is what we refer to as the residence experience or the term experience. But I think that the residence experience is a valuable experience, and it ought to be a part of the total environmental education program. It may not be the place to begin, but it may be the only place to begin, because it may be the most saleable. So it might be like putting the "cart before the horse." But I would do these kinds of things if I were sitting here and were working in the State of South Carolina. I would really begin to do a little research and get an input of what is happening and help us to guide your plans, because you really are in an enviable position. It seems like you are on the growing edge of something that could become very well a model for states that

are similar to South Carolina. I don't know if you could become a model for the heavily populated, industrialized, polluted states, but these are some of my "off-hand" and really maybe not unwanted observations. Someone has got to have this assignment, Al, some group, to get some input. I'm simply amazed. I've learned a lot just in the short time I've been here, and I'm enthralled, and I'm thrilled, and I just hope it comes off.

(Dorsey) - I would like to brag. I would like to make one more statement, and do it in the form of a brag for the state of South Carolina. Not for what might have happened within it because I think the state as a whole actually is involved in it. I sincerely feel with the contact that I have had across this country in different kinds of meetings, I sincerely feel that the step that South Carolina took in 1958 and 1960 was the step that put the needle under the attitude of the nation relative to environmental education. I'm going to claim for South Carolina that it had something to do with awakening this attitude for environmental education across the nation. I believe that I can find some support for that, because at about that time the nation itself was still somewhat asleep, but immediate publicity that came from the project that was started in South Carolina, through the publications that came from the project that was started in South Carolin, through the publications that included it and involved it, begin to bring reactions from lots of places and a lot of interest began to develop. And I think the state as a whole ought to be credited with having something to do with the awakening of concern for environmental education.

(Jackson) - I might add that we are still getting about two to five letters a week asking for complimentary sets of PEOPLE AND THEIR ENVIRONMENT or what is South Carolina doing in environment; we've heard of it, you have a good project, what are you doing now in environmental education, etc.?

Employment Opportunities in Environmental Education

Robert Saveland

On Monday evening, a speaker came to our campus to give a talk and he was telling about this Eastern Airline pilot who was fired because he refused to dump the kerosene over the city of Miami. And he said that this pilot had come to his house and had talked to him quite a bit, and so Mike finally wrote an editorial about this saying that the pilot should be hired as the environmental specialist for Eastern Airlines, and low and behold, Eastern Airlines has hired this pilot as their environmental specialist. During January, I went over to Bernie Patton's house who is in the institute of ecology and Dr. Odom came over. Dr. Odom was talking to the class, they gather there once a month informally. What they were going to talk about at the meeting was opportunities for the graduate student in ecology. Dr. Odom passed out a sheet that had some information on it that I think is of some relevance to our topic. What he did was to take a look at the production of ecologists at the University of Georgia in different periods of time. And one was from 1945 to 1965. Well this involves the post-war era pretty much. And notice that this is 20 years,

and in 20 years' time they had 44 entering doctoral candidates into the graduate school who were all from schools of biology. They were categorized as biologists. And of those 44 who entered in this 20-year period, there were four they can't account for as to where they went. They've lost them some place. Twenty of those accounted for went into college teaching in research, the other twenty went into federal and state governmental service. This is resource management type position. You know what some of these are. So that it was about evenly divided between the 40 coming in in the 20-year period as to those who went into research and those who went in the government service resource management. Now in the 5-year period from 1965 to 1970, that's the present time, during that time 32 students have entered in the graduate school. Now one of the things Dr.Odom was talking about was one thing we weren't discussing was how the character of the black box is changing. The black box is what he called the graduate school. And some changes are occurring in this along the way too, but that is outside of the discussion at the moment. And again these were all biologists, and of those 32 there were two that have gone outside in unrelated fields, insurance agents and things of this nature and the remaining 30, 20 went into college teaching, 8 went into resource management and 2 went into industry. Now, he has projected what he anticipates might be the next decade. From 1971 to 1981, in the next decade, they figure that there will be about 160 coming along to enter the graduate school; 80 of whom will be from the field of biology, 40 will be from other natural sciences, and 20 will be from the social sciences and humanities. That's the input side. Now the output side. Of that group of 160, they figure 56 will go into college teaching. He pointed out that college teaching opportunities are going to be less available than they have been during the last 5 years, and we have already seen some of this. Fifty-six in college, 20 enter resource management, 20 into industry and he figures 20 are going to go into planning activities, and then another 20 will go in communications and related activites. Well, the thing that this does portray is that the diversity, the output is going to be much more varied than it has been in the past. Actually, I'm no expert as far as the job situation is concerned. But I did look at the latest AAIP Bulletin and I think probably for the first time there is a listing here "Environmental Studies Director." And it is probably indicative of a trend. If there is one now, there will be more to come.

(Jackson) - They want the person, it's not a person who is looking for a job?

(Bob) - They want the person. Preferred strong background in appropriate areas of biology or in politics or sociology, with some training in biology, Associate or Professor starts September, 1971: Write to: Dean, Cedar Crest College, Allentown, Pennsylvania 18104. An equal opportunity employer. This is the little newsletter of the institute of ecology called Intercom and here are jobs in it here. Well the University of Tennessee, College of Women; Mary Baldwin, University of Notre Dame, University of Toledo, Rochester, University of Houston.

In my own field of geography, we have what we call the J.I.G. sheet, Jobs in Geography that is put out by the Association of American

Geographers. And this is the one for January, 1971 and I have gone through just to encircle those jobs which have some relation to resource or ecology. And if you would note here that there is a great number of those positions. By the way, it's one of those areas where we still have four sheets worth of jobs available. And we have no trouble placing our graduate students as far as those who come through in geographic education is concerned. Those are some of the jobs that are resource oriented.

(Jackson) - This is, of course, in addition to teachers who would be trained in environmental education.

(Bob) - Going back to Dr. Odom and the black box, one of the students raised the question, well what about a student in journalism who wants to really be a journalist, and yet wants the background of college? What can he do? How can he get this interdisciplinary thing going? And Dr. Odom was saying the way to really get it done is for a student to break the ground. And I've had a number of students coming to me wanting to pursue a masters program with a strong emphasis in environmental education. Currently, we really don't have the program, but if we have the students, we will get the program.

(Jackson) - Are there questions concerning this part? I think you can see that while we're basically concerned with training teachers, there would be a spill-over in fact there are in positions available at the present time in limited number, they probably will increase.

(Sarah Walker) - I would like to underscore Tom's suggestion that school districts and communities consider hiring someone on a full-time basis to work in their environmental education program to help teachers and to help you get such programs going.

(Jackson) - School districts here, especially the ones involved in Title III funding, are all of a sudden looking, because they want to know if we get money for environmental education projects, we will need a Director who knows how to do this, where will he come from?

John Jackson and Tom Rillo

(Jackson) - George Dainty, the Education Manager with Southern Forest Institute is acting as Moderator to try to keep us on the track.

If you have looked at your program, we have really two basic things. Today, as you can see, we are really hitting two major topics "Implementation of Environmental Education Programs" and "Evaluation of Environmental Education Programs".

Dr. Rillo and I will talk a bit about implementation, we would like for you to fill in your comments because we know each school, each college is different as to policy, as to procedures, as to how do you get such a thing started. We talked about implementation in the public school a little bit yesterday. As for implementation, it can take various forms - teachers can be trained, we still need, of course, to contact superintendents and principals to explain to them why teachers are being trained in environmental education. How it will be beneficial to them, long term effects. We talked a little bit yesterday about legislation and about changing certification requirements. I think it was a kind of consensus of the group yesterday that they would hate to see legislation mandating, or requiring environmental education or a course in it. The feeling I got yesterday you would rather get something started but do it your way. Is that correct?

(Dr. Giles) - It's correct from my side but may not be from the other side.

(Dr. Hirshey) - Inmaterial, whatever they prefer.

(Jackson) - Let's put you on the spot. Which would you prefer? Would you rather at the Citadel see legislation coming out saying you had to have a course for all prospective teachers in environmental education; would you prefer to see the accreditation standards changed a little bit that said for a teacher to be certified, had to have so many hours of environmental education methods; or would you rather try to set up a course with no legislation directing it.

(Dr. Hirsehy) - It would depend upon the state, I think, to a degree. In other words, when we look at common learning, what do we value, what do we consider as basic, fundamental to a good college education. Maybe this is not strong enough, valuable enough to impose as one of the common learnings like history is or something like that. And then when it comes to certification, maybe we should structure it so that there is certification in this specific area. This is a speciality. Just like counseling.

(Jackson) - Well, now here we have gotten into some other things we were talking about yesterday. If we get specialists, then we've got perhaps one course students can take in environmental education, unless you are talking about a supervisor which would probably be at the masters level to work with a couple of school districts. Or are we talking about requiring all teachers to have a three hour course in environmental education methods, so that the first grade teacher can do as good a job in environmental education as the 10th grade in social studies or 12th grade physics teacher?

(Dr. Hirshey) - I think in South Carolina with most colleges it ought to be part of a general course. They are not going to initiate a course "methods in environmental education". It ought to come under the general secondary course in methods, in materials.

(Dr. Rillo) - I would like to know why you would put it at this - when you say secondary - do you say secondary level?

(Dr. Hirshey) - This is secondary education I'm talking about. I didn't get to elementary. I think, myself, that this ought to be part of the basic curriculum for all elementary teachers and put this into the science requirement in the common learnings. That's where I think it belongs with the elementary teachers.

(Dr. Freeman) - I think that the task that we have is far more momentous than a course in some department. I think the task in the state department is going to have to convey not only to the educators, but to all of us in science that environmental education has got to come to every one of our courses. Now this might sound direct theoretical, you know, but it can be done. The college at Charleston for instance when cell biology was becoming so prominent over the nation we held back from the compartment course. We put cell biology into every single course we taught on the campus and finally we bent under and went into the course. And whether it's right or wrong, we don't know, but we're getting the course. But we still have cell biology in every single course. I think environmental biology belongs in every course that is taught in the sciences. I can do it in comparative anatomy, which you may not have thought of, but I can very easily, geology and many of these other factors. I can do it in embryology, I can certainly do it in genetics, and I think we have to get this over to the sociology people, ar I think this is the big task.

(Jackson) - How do we get it, how do we implement it, how e get this in every course?

(Dr. Freeman) - I don't know. I can handle it on my department level because I have an open-mind type situation with my staff. I could take this back to them and they would be willing to try it. At least get it in. When they see a point to get it across, they will get it across. I'm worried about the implementation. I think that we have to education people like me and all the rest of my staff. Now I will try to educate my staff. I will try to educate Mr. Holiday when I get back. But I don't want to go back there and tell Mr. Holiday, run out and make up a three hour course somewhere and put it in the curriculum.

(Dr. Ballou Skinner) - I will make one comment. When I was at school of public health at Chapel Hill, I took environmental biology and environmental chemistry. And I agree with what Harry said, and in our science courses per se we need perhaps to put more emphasis in this area. But again, from the teacher of teachers' standpoint, I think we each have an obligation, an individual obligation, and it's meetings like this, I think, that will encourage me to go back and make a little stronger effort. Now as far as convincing my staff, our staff, I will do all I can but there's where the hang-up is. I think you hit it right on the head and I really don't have any answers for that.

(Dr. Giles) - I can see two things. Now what I was saying about legislation, I'm thinking primarily the secondary level, I don't know enough about the elementary problems. But the secondary, if anyone would legislate to take a course in this, I don't think it would do nearly as much good as educating the whole staff they are talking about, bringing things in. Now I think there will be quite a change in me as I teach the methods and have other people teach methods in social studies. But you only got one of us in the University in this case. Now you may or may not be lucky enough that I may be glowing enough to spread it around, you got other people there, but I wish somehow that others of the University in various key positions like Dr. Dean, Dr. Bolls, Dr. Sivernail, well, I could name five or six that could come to a conference like this very profitably. If you would get that group to a conference such as this, then you would have the whole campus on fire. But it's hard to get one person from an institution of that size and get that one person to do it and if somehow you get five or six from there in various disciplines and they would find themselves plugging for the same thing and stirred up, then we might make the thing go.

(Tom Rillo) - Something is happening where I am, I've been invited this next semester to a series of seminars for social studies, for the foreign language department, believe it or not, with the Industrial Arts, and for two or three other departments. English, for instance, now when I go to the English Department, and I'm going to think about how these people are responsible for teaching English, how can I in my seminar relate environmental education so that I touch upon some familiar basis, you see, some familiar notes.

I think I can turn some of the departments on fire. But you see, they have me there, I'm an environmental educator and I'm employed at the college. And it's the same thing that is true at the public school level as is true at the university or college level. You've got to have someone if you want to kindle a flame in others, you must first glow yourself. And you have got to have a glowing person who can be the catalyst, who has a little bit of time that can go around and conduct seminars to those departments and its been upon invitations. It's been three years now that I've been there. Now it's invitation. They want me to run, and I've been given credit for running these seminars for the departments. And I hope that out of this will come a more cohesive, because we tried a questionnaire three years ago. We sent it to the various departments to try to get them to identify what they were doing environmental education in their respective courses. We had very poor results. We sent this questionnaire out two or three times, you see. It was so difficult to get professors to answer the questions even though we were right there. This was three years ago. I think if we were to replicate that, I think we would get a better result today. But I think these are the kinds of things that you talk about implementation. I think you need to have, if this person doesn't exist on the campus, then the same kind of thing that we've been recommending to public schools and that is an organization or a committee or a council - an interdisciplinary committee. And this committee would be known as the environmental education committee and we have one at my college. I have music people, art people, philosophy people, I have a theologian, religion in philosophy, and he's great. Because I gave him Elder's book on Crisis in Eden, I said, "here read this," I gave him Theology Today which germinates out

of Princeton and the October, 1970 issue was Theology in Ecology; here read this, all of a sudden he is turned on, you know, and I've got the philosophy and the religion department thinking about ecology. So this committee is working away - now maybe this is a way of implementation, you see. A committee on campus. Now we've become concerned too about the campus itself and the environmental degradation of the campus, and why they have gulley erosion or the power plant is spuing out stuff into our streams that runs right through the middle of our campus. We are polluting it. And we're involved with a lot of things like this. But I feel that these are steps to implementation. We all know we may not always have the resources to employ another faculty person.

(Jackson) - About five of your campuses have ecology groups. These students may be able to help you get something started. The other campuses, I imagine you can start a group with too much difficulty if you people here would go back and get the students to do so. This may be a way to reach some other professors that you wouldn't otherwise reach.

(Rillo) - I have students on my committee. I'm the Chairman of this Environmental Education Committee and I have student representation. And these students have been responsible for the eco action, but they have also been responsible for such things as when the college decided that they wouldn't send all of their juniors to the New Jersey state school of conservation for a week, this group became very excited and they said we would want to go, we would like the experience. Why should someone make a decision and say that we are not going any more. After all, we want to go, we like the experience, we want more of it - not less of it. We are the only state college out of the eight who is sending their students, all of them, to the New Jersey state school of conservation. We are still true blue and we are probably keeping the place alive a little bit with our revenue. But these students are also concerned - we split and had liberal arts emphasis, too. We found out that the liberal arts students were not going to Stokes State Forest to the New Jersey state school of conservation, and the students became very excited about this and they claimed discrimination. Why should the college of education discriminate against the liberal arts college, because we want to go, we think there are some experiences that we can have up there. So these student representatives brought it before my committee. My committee, of course, was able to take it to the administration. These are the kinds of things we do as an Environmental Education Committee. Still the job is tough, even though we got this machinery, the job is still difficult, you see.

(Roger Seamans) - You mentioned Eco-70 in these groups. I think with what was done last spring certainly opened my eyes more than anything else in meeting with these various groups was that prior to this you have a feeling that these people don't have too much to offer. But once you start working with them, you realize that they are more aware of the problems than you give them credit for. And when we start talking about the University, they certainly had an enthusiastic groups there last spring. But it's not there this fall and this winter unfortunately, because few of them are left. But this is a base that we should get through to the administration is that the kids want this, they are aware of it, and they want to do something, they want to be a part of something as far as our problems of environmental deterioration is concerned, but they are

frustrated because there's no way in which they can function.

(Rillo) - Al Dorsey presented a site yesterday for South Carolina in environmental studies, is it located near Charleston?

(Jackson) - Considerably north of there.

(Rillo) - Well, couldn't these students become a part of this project and get involved like the students from your college and the students from the other colleges that might become a part of this consortium, become involved with the creation of an ecological study center where they would have a share in its planning. This is an equal action.

(Roger Seaman) - Why wait for all of this. Recognize first of all when we get involved with things you are talking about, this costs money. And if you want to look at South Carolina's project at the moment, this isn't a good time to talk about money. But surely, surely, we can implement types of environmental education in the existing structure.

(Bob) - I just want to talk a couple of things about our Balance group on campus which I think can be applied to some other situations. It's a very active group, of course, in connection with our institute in ecology we got a number of students who are oriented in this direction. But one of the things they do is to meet in a particular part of the student union every Tuesday afternoon for lunch, open, and this is broadcast through the "Red and Black" and other places so that anyone who is interested can come and meet with them. But they run the Balance group. It is done by the students. One of the things they did last week, there was a hearing on myrex at the state capitol. They organized cars to go and attend that hearing. One of the things when I last went to one of their luncheon meetings they were very much concerned with zero population growth and they have this loving book which they want to give every freshman as he enters. And this is moving throughout the Southeast and, of course, this attracts a lot of them.

(Dr. Robert Hannon) - Come back to this workshop method. I noticed Dr. Rillo, he's already on his staff there at the school, but in thinking about maybe some day the Universities that might not have a specialist like Dr. Rillo, and I believe that the observation was to bring a group of our faculty members maybe to a conference like this.

So my observation is this. Why not take a workshop to the campus. Assume that my school, State University, what's wrong, what would be wrong now, just say that all you people here would be on my staff there. I'm just saying this is a group of my faculty members. We could bring in two or three specialists like Dr. Rillo and have a two-day conference right there on the campus. I think this would create and get your students involved right there on the campus.

(Dr. Rillo) - We need a guy like you for the workshop that would do the public relations and say "you have to attend this - this is the best thing yet." We have to have a catalyst there; otherwise, your workshops would be perhaps poorly attended. You have to have some enthusiastic catalyst when you bring a group of resource people from the outside. Well we don't quite have the name that Ralph Nader has, they are drawing cards.

So I would say "yes" I think a college or university needs someone like you who now feels that this is important, and important enough that he would be willing to work to see that the workshop is set up and is properly attended and the right people are invited.

(Jackson) - If you want such a workshop though on your campus, you can contact me and I will try to help you arrange it or Mrs. Walker at Clemson if she can get away from her classes, which may or may not be possible. But there are some of us in the state who would be glad to come and agency people who you will be hearing from in a few minutes, but they will be glad to help us, so we can arrange a workshop here practically on any campus. Just give us some lead time so we won't be two places at once.

(Dr. Harry Freeman) - Well, I think we should get down to the specific thing that I think can work in South Carolina. At the present time if I am not mistaken, the president elect of the South Carolina Academy of Science is Dr. Minchner. There's no man more interested in youth than Minchner is. As a matter of fact, he is organizing the student group that meets with the scientists this year. And in the South Carolina Academy of Science, we have some strange bedfellows. We have the economist, the physiologist, and we have the philosophy groups that meets jointly with this group. Our Commissioner will probably move on into presidency next year, and if you and Al could get the Commissioner at an early date and just set the program up and invite anybody you want from any discipline, set the program for the South Carolina Academy of Science next year up as a two-day workshop rather than all these papers we get, some of which are completely irrelevant to anything, and have a two-day workshop on environmental education. You know, I think you could work out something real good. And the Commissioner is a very prominent person on this type of thing.

(Jackson) - Do you see the Commissioner at all?

(Dr. Freeman) - I will not see him before March. Here is something that could help the Academy of Science, and have a two-day workshop for the Academy and something like that instead of an Academy meeting and invite everybody from sociology and political science and any of these groups that want to come.

(Terry Kurpius) - I was going to mention in terms of ecology groups. I think that I call mine recruitment teams, because what they have been doing is going out into schools and talking with school groups in terms of setting up environmental action groups.

(Jackson) - Now you say going out to schools - you mean going out to public high schools?

(Terry Kurpius) - That's right. They are students. In fact, the advisor works with the school system. I call them the recruitment team because when they go out they represent Western and they represent a side of Western that is very humanistic and appeals to the students involved. I honestly feel that they support our visiting scientists and biology groups. They are the ones who keep a lot of students coming, but they are the main group, they are the core for supporting this.

(Dr. Ballou Skinner) - I would think the trend of today is most of the small colleges will listen to the suggestions of somebody in the science department. I think of two small colleges and this is true. In other words, you have a human relations course curriculum, you have a course called Christianity and culture, something of this nature, and it's usually geared for freshmen coming in; a seminar kind of thing. The instructor is usually very happy to have someone from science come in and represent environmental education. You may want to call it science and society.

(Jackson) - Let's remember Dr. Rillo's two definitions yesterday. A distinction between environmental science and environmental education.

(Dr. Skinner) - Well environmental education wouldn't require a scientist to do. Because I'm teaching a freshman course, but that's not long enough, one hour seminar, called science for society and I think this is a good place to start.

(Dr. Rillo) - We're introducing a course next September and it's "Theology in Ecology". It's going to be taught by the theologian that's in residence, that teaches in that department, and he really practically is scrambling right now gathering all kinds of material to try to present the ethics and the moral obligations that man has, and we don't know whether it's going to be a quarter course, if he's got enough material for a quarter course.

I knew an old agriculturist, Dr. Ledbetter from the University of Missouri, that knew all the process of making change. And when you make change, there are five steps. First of all, the first step is awareness, the second step is interest, the third step is trial, and the fourth step is evaluation, and then the fifth step is adoption. So we've got the awareness, we may have gone to step two, we've got the interest, now we are at the third step with trial, we are going to try this course. Now when we evaluate it, we may doubt that the curriculum to be the department of philosophy and humanity. This would be a course offered because we are changing some of the curriculum. I think these five steps are important to this group; some of you are at the awareness level, some of you are at the interest level, and some of you are ready for the trial, and some of you are ready for adoption. But I feel that there is a distinct difference, and there is an overlap too. And I try to think of the role that the educator has to play, teacher of teachers and so on. But that's all a part of the whole environmental thing. I mean Harry, as a scientist, has an immense contribution to make, and Roger as a representative of an agency within the state of South Carolina has certainly a role to play. We're all trying to win the same ballgame, and we've got the coach. That's why I say, I'm an environmental educator, I'm not an environmental scientist. I've had a lot of training in natural history, but I'm still an educator and not a scientist that Harry is. He's got an applied science background. And Bob is a social-scientist and has a reputation and expertise. The movement ought to be centripetal instead of centrifugal. It ought to be inward to the same goal and not outward in many different directions as it has been characteristically so in the past. And that's why I like the word interdisciplinary and coming together. We are in here because we feel that it's important. So important, in fact, that it needs to be given a priority.

John and I thought we would really let this be a two-way thing. Bob, here, Bob Leach calls it interaction - lots of time for interaction. So we don't want to do too much talking, because nobody has really got the answer on implementation. All I found out over the years is that you have to have a catalyst to get action. And in public schools, if you have somebody who is interested and employed to do this, things get done. So we are still looking for ideas.

(Dr. Lawrence Giles) - I was just thinking, in line with some of the things we were saying yesterday about many colleges and universities opening up and allowing more electives and things now, the field is wide open for considering student interest, plus the opening up of electives. If we could get the people to offer a worthwhile course, it's open there, the field is open for us to do it. And so it's up to somebody to offer this course which will be challenging to the students. And if the movement is worth it, I mean if they really see this, and we have the leaders to come in with the courses, it will catch fire. But if we have a bunch of dud courses, of course it won't.

(Jackson) - If you would like for me to give you names right now on the campus who can help you with it, one is Dr. John Dean and one is Dr. Tudor Davies. Dr. Dean is in the biology department, Tudor Davies is in the geology department, and they are both doing individual things with their classes and I think right there instead of you feeling like one lone person in the wilderness, you will have at least three lone people in the wilderness. I think together you can start coming out of the wilderness awfully quick.

I think there are others. These are the ones I have had personal contact with at USC.

(Dorsey) - There are two that I would like to mention that I have had some contact with, Wade Batson and Bruce Nelson. They may be in different levels, and different areas, and different situations, but they are both tremendously interested in environmental education.

(Dr. Giles) - I think you can get up to 20 people who are just as interested as I am.

You know, there's one thing that interested me. Now last year you could get students maybe from the right and the left involved - most of them were more interested in the ballgame, but some did get involved in things last year in movements. They are not involved as much this year. We've had several speak out in meetings of the University and said - the faculty goes to meet the faculty. We are there to hear the students talk. But the students are not showing up this year. Now maybe it's unique to us because we had our problems last spring. But I understand across the country there is something of this. The students are not involved in the above open type of things, at least this year, that they were last year. I know that this is a nice safe area that anyone can be respectful and still be in this movement.

(Dr. Rillo) - We have some very basic common denominators that we all share regardless of where we are. I got some of my students involved in teaching environment education in adult education schools. These are

courses that are taught in high school. And so some of my full-time students are teaching courses in adult evening schools. And it's working out well. And then there is a movement in the junior college. We have junior colleges in our state and two year institutions and they are very much interested in teaching; these are general environmental education courses. For these students whose education maybe terminal and yet even though they are going into a variety of occupations, that they are still going to be voting citizens and should be involved with environment. So I'm trying to get to see that this end of environmental education is also considered. There is a place in the community where there is information dissemination. It may be in the form of an evening course. And where we've taught these courses, we are talking about four different high schools, evening sessions, we have had attendance of over a hundred, of course we had to close out the course in each school. Very, very popular. In fact it is even more popular than jewelry making or some of the other more traditional adult evening school courses. But this could be an exploration too in South Carolina. You probably do have evening schools, where high schools are kept open and colleges and universities. And this is a way of getting the students involved. Maybe even undergraduates could teach a class. Youth want responsibility. This is one way of giving them some internship perhaps at the real, what we call "real gut" level, you know. You have to work with some adults now sitting up there that's as old as some of your parents. Maybe some of them in that evening session; now let's see you, you have been around the college now getting involved and things aren't happening, well now this is your chance. Maybe you can have a team teacher. And they, themselves, as they prepare their units either on evolution or biological clocks or what have you, this would be a learning experience for them too. I think what is needed in every state in the country is creative imagination. So these are other ways of implementing the programs that we have found to work.

(Jackson) - One thing I would like to interject here, just sort of as a passing comment which deals a little bit with implementation. Last year, as you know, there was "Earth Day" which a lot of people said was a fad, a lot of people said was ridiculous, a lot of people said was good - take your pick. In August at the National Conference of Governors passed a resolution declaring the third week of April, 1971 to be "Earth Week". If you want a core to work around to perhaps get something more organized on your campus or get started and you need a reason - it's a thing agreed upon by all Governors which is formal, but yet informal.

(Bob Leach) - Our balance group has asked our president to declare a week in April as "Environment Week" and they are planning a film festival that will feature environment films throughout that week as well as our displays around the campus.

(Sarah Walker) - Who pays for the films?

(Bob Leach) - They get them on loan. It doesn't cost anything. They have also through the Spearker's Bureau invited Muskie, but whether they will get him, I don't know.

(Dr. Lawrence Bryant) - I thought of another push. On a campus that hasn't started, would be for one to work out a statement and send it to all school organizations on campus giving definition about some view of

what environmental education is and as each student moves on campus, consider taking action.

(George Dainty) - I have one comment to make. I've heard a lot of good ideas from our discussion this morning, but the one that I think that has real merit is the one that Dr. Hannon brought out. Is it possible for some group within South Carolina, possibly the South Carolina State Department of Education to set up a team of ecologists or a team of educators to develop a program that might be taken on campus, and I would limit it a little bit. I would say that for staff members offering many, many suggestions in each of the disciplines ways in which they can incorporate environmental education or environmental aspects into English, into Political Science, into ideas of this sort. Let this team be on call to carry this development to their workshops, to staff members where and whenever possible. I like that idea.

(Dr. Sylvia Swinton) - That is just what I had in mind. We are going to try it out and see if we can't do it with the two colleges at least.

(Terry Kurpius) - Would your faculty be receptive to this?

(Dr. Swinton) - I think so.

(Jackson) - It wouldn't have to be two days, it could be one day, depending on faculty arrangements or whatever.

(Terry Kurpius) - I'm thinking in terms of a large faculty. I'm wondering if it wouldn't be necessary to draw up guidelines. I'm talking about paper.

(Comment - not identified) - Well, a lot of thought would need to go into it.

(Terry Kurpius) - It might be all right, but where you have three or four hundred people who have multiple activity.

(Jackson) - It would be hard to get them together for two days also.

(Terry Kurpius) - Has this been tried in other areas?

(Dr. Rillo) - With large universities? In Illinois, we had an advisory council much like you have here. But it was split into regions: Region I, Region II, and Region III. Illinois was pretty fortunate that they could send out teams to conduct workshops at any college or even public schools system on call. Yes, it was tried, it works very well. In fact, we knew enough that the initial workshop was at the awareness level, but in order to get into it, if we were going in again, the workshop wouldn't be the sitting down talking to type, but rather in doing kind of workshop. If we are going to work with the English department, we would show how you could work with English in the outdoors and the professors and so on would be out there doing these things. We found this to be very effective. And you don't turn them all on either. It's just like a questionnaire you send out, you don't always get back 80% returns. You don't get 80% returns on your teachers either. Professors

will be professors and teachers will be teachers. But you will get enough of them interested within the department. And there is such a thing - you know the teacher who does environmental education in her class and nobody else in the school does and all the kids in the other classes say, "why don't we do it, Miss Jones, what's wrong, why aren't we doing what Miss Smith's class is doing?" There's nothing like that kind of pressure. And sometimes the students will begin to wonder that if the professors are being creative with their classes and using the environment, incorporating wildlife, these other professors are doing the same thing. At our college, the professor that teachers meteorology and astronomy does a lot of environmental work and gets his students involved with outdoors a great deal. The workshop idea has worked in the past. There is a tendency of it being too big. Now I wouldn't want to work with more than one department at a large university. If it's just the awareness thing, the general presentation, getting them to get familiar with the scope and definitions and this kind of thing, it could be a big thing. You have to follow it up, and maybe workshops need to be evaluated themselves.

(Bob) - I would like to turn to the fact that Georgia Southern has just recently gotten a grant to conduct in connection with other schools, a series of conferences on the environment in which schools from the surrounding areas will come in. Now here is an opportunity to perform a role in which you can reach the audience that we are really after, and this is the school people. But one of the difficulties I see in this process of change is that we may get to the interest level, but we don't very often get to the trial level. For one thing, as far as curriculum change is concerned, the social studies teacher is going to go back to his American history course that covers everything from Columbus setting foot until the Johnson Administration in one year. And generally the science courses will go to the blue book or the green book and the science study project. And how much change you actually effect, if you don't get trial though, you have nothing to evaluate. And I think one of the things we might do is - well this particular thing the teacher's guide that we say - here's an agency for a change which shows the "how". But then this has to be followed up by students' material. There must be a rational that people can see the value, that this is meeting a need that they feel themselves. And you have to really sell the rational. And you know, I'm wondering if we have a rational that we can all agree upon as far as the centrifugal force is concerned. Of course then, a curriculum organization, it's pretty hard to change. I sometimes liken our educational system to a blob of molasses.

(Comment - not identified) - We're not trying to change the curriculum are we?

(Jackson) - Are we or aren't we? Even in integrating environmental education into the present curriculum, you are making some changes because to add anything you have to delete or change something else.

(Comment - not identified) - But what I mean, the change is not that great that we are going to disturb the whole curriculum. No superintendent wants you coming in there with an environmental thing that's going to turn his program bottom upward. I think it's the degree of change that we are talking about.

(Jackson) - It's degree of change, it's a slow change, but eventually - 10 years from now the whole thing might be slowly turned at least onto its corner, 20 years before it's on side, and 30 years before it's bottom up.

(Comment - not identified) - Let me carry this thing a little farther back. Now, you raise a question how do we implement the program? We are going to have to educate the President of our college. Now that's a big job. Once you get the president behind this thing, we are not going to have too much trouble so far as getting funds to add on this man Dr. Rillo was talking about and we have got to have one person, or one group, or one department. We have got to hold somebody responsible for environmental education. Once we get the money, I think we can move. But we do have the job of trying to educate the president of our university.

(Dorsey) - Maybe the reason for what I see an urgency to be, maybe to grasp the bottom of that curriculum bucket and shake it a little bit in the hopes that it will turn, is that maybe ten or fifteen years ago we didn't begin to make this small increment change to the point now that maybe we are looking into a crash program that will have to be initiated and shake the props of some of the situations. I'm one of those that believe that maybe one of the reasons that we are not really accomplishing or achieving what we had hoped to with education is that we may possibly have too much administration and organization and not enough curriculum and instruction. And that would certainly be a shake-up, a change and so on. If we centered our intent for education on the program itself and then let the program dictate the organization, and let the program and organization then influence its own administration, I believe we would be hitting it closer to the child and closer to our needs and purpose than to go at it the other way. So I think maybe I wouldn't worry about the change and the amount of change. Because I believe that the content material that most of you carries, if it's really gone into the depth, turns out to be environmental education.

(Jackson) - In a way it is a bottoms-up thing. It's not over night in turning over, but it's a shifting in many of our teaching methods. Especially when we consider going outside the classroom, getting involved in community action and so on. And it will take a little turning in some places to get it started.

(Dr. Giles) - I am very pessimistic at times about making any little changes in history courses. Because you put these little changes in and yet now there is a series of textbooks. These teachers are very traditional, but they will buy a drastic change if it's in a textbook. So this new inquiry series, Holt, Rinehart and Winston coming along you find the most traditional teachers handed these books will use the newer methodology because it says to. You ask such and such questions, you have them inquire, you don't tell them the answer, you make them do this, the book says that's what you do. So the teacher asks the students to do this. But what I'm really saying is that some drastic changes are taking place in the social studies, even though most of us, as we go into the social studies classes will see the courses taught the way they were 50 years ago. But there are some signs that if this movement can get in on the bandwagon with the sociologists and the geographers and the others on the discovery-approach it might help change it so that this newer

methodology you are talking about will win out.

(Jackson) - Can I ask a very loaded question? How do we get professors to change their methodology toward their students?

(Dr. Giles) - It is extremely difficult. Actually, I would say at the University, the teachers typically do not have anyone teaching them the way we tell them to teach until six weeks before they are going to be student teachers.

(Jackson) - You know it six weeks before student teaching starts.

(Giles) - Yes, they start working on it the way you really should. They say what about the way we've been taught all our lives, and even in the previous education courses. They say remember how in those previous education courses that they lecture, they told you not to lecture. It is an interesting thing. Some of the departments across campus are bringing about changes faster than education is bringing about changes in inquiry methodology.

(Mr. Bobby Leach) - I would like to share with you an exciting innovation in education we are involved in at Wofford College. It's a program that was created to involve our students in a study of the college problems that face mankind today. That's how it started out, it was an idea, and I was hired to develop this idea. It has been one of the most exciting tasks of my life. After teaching math for about 10 years and being an assistant principal for three, this is indeed an exciting task. Now what we did, we chose two topics. One issue is the "Urban Crisis" and the other one is "Environment and Human Survival." We chose the dormitories, I did, to change our bull sessions into meaningful conversations. The other idea is that students learn more from their peers than they do from their professors. This is what we were working on. So we put one topic labeled "Urban Crisis" over one dormitory and over another dormitory, "The Environment." We have 369 students involved. It's required for all freshmen, and volunteers of upper classes. We have blockout in scheduling, showing you how you can get it into your curriculum. On Tuesdays and Thursday, what used to be the old chapel time, we involve ourselves with the cultural affairs committee. They bring the speakers to the campus, so why not bring people to the campus talking about pollution, talking about the survival of the human race and environment. This is the way we work it. But now the fascinating part of it is, it is taught by seniors. We have 21 seminars going on across the campus, on Thursdays from 11:00 to 12:30. If we are going to have a speaker, we move the seminars back to Tuesday from 11:00 to 12:30, so that he can speak at that time; the seminars' discussions to be taken place next Thursday, at that time which is a follow-up of what happened. Of course, we have the open speakers' policy. So they can't question him on the spot. We spend the money to keep him there all afternoon so he can help the small groups and take the seminar later. They go back to their participants and they discuss it again. I work with the seminar group; I show them teaching techniques; I order films for them, I work in getting the speakers for them, and they make their lesson plans, they bring them to my office to look at them, to take a look at films they are going to be using on Thursday for participants. We carried it to one Foundation. They gave us $23,000 to carry

it for two years, working on the fact that we are also in the model cities areas. The students have gotten it from the urban classes angle, they have gotten involved into the model cities areas. We have five model cities in our area. They are working with model cities, they are working with the police. So why not bring the police on the campus to our seminar, let them speak to our participants in our seminar, why not bring business men into the center when they are talking about pollution. Let our kids ask them questions to get a thing going between the two. It is real exciting. And at the same time, it is being carried on by students. We try to take it out of the classrooms, seminars are not held in regular class. They are held in dormitories, in the Baptist student center, outdoors on the lawn, if possible when it is warm. Any place other than the regular classroom. We have used the coffee house. We use it when we can to get around that old type teacher-student thing. I think this idea is going to serve as a model for education. I think this is where we are going. And if your professor still likes to stand and lecture, I think his days are numbered. Because I think we are going to go back to the small group. If you are going to have one professor standing up lecturing to 20 students, that's a waste of money and time if you don't get any interaction between the two. You barely can catch him before he runs out the door. I know you have been hit with the same thing. But here they interact. We had an evaluation the first semester, there are four faculty members. You got to either get with it, because the students may come to classes - look what I am doing, look what the faculty members are doing today. I am interactive with my group.

Use your students rather than worry about the curriculum. If you can get something free and get it started and get a Foundation to back it, you are not going to get too much trouble out of the president. Before you know it, it will be such an integral part of the curriculum, that he will have to go your way, I think.

(Bob) - In one sense, this reminds me of an experimental course that has been developed at the University of Colorado Boulder by David Hill in conjunction with some scientists from other disciplines. And they have put together a course on four issues, pollution, poverty, power and fear. And they had a book of readings that are oriented along these. And they had a teacher's guide which suggested you bring in some of the music that is currently oriented toward these things; some of poetry, and they are now seeking to have this tried out on various campuses. We are going to try to offer this course as an elective, in the spring quarter, and anyone who wishes to correspond with Dr. David Hill at the University of Colorado Boulder could get further information about this particular course. The readings, I think he would probably send you a copy.

George E. Dainty - Moderator

Southern Forest Institute

So far the discussion yesterday and this morning dealt with educational process with implementing environmental education into the school curricula with other aspects of it, and now during this session, during the latter part of it this morning, we would like to hear from representatives of some of the agencies that are concerned with the environment. Also, we are asking one of the school superintendents to relate some of his ideas about it. We have five different speakers and we have one hour. That gives each of us ten or fifteen minutes. Let's get into it without any more introduction. Speaking first for the South Carolina Wildlife Resources Department, Mr. Roger Seamans, will discuss some of the ideas that his agency has relating to environmental education.

(Mr. Roger A. Seamans) - Our evaluation of a program within a school system is one in which we would like to see that the students that come out of that school system have an awareness for the values of environment. Now when we listen to Dr. Rillo and my eyes got widened yesterday from this because I think we have a tendency, because of our disciplines, to think of environment as being those things which we are directly concerned with and live with. And when I begin to recognize, although we have in wildlife management recognized for some time, that people is a part of our environment. We look at the picture now a little bit wider this morning than we did yesterday morning because we are talking about this. He said peeling paint on the tenements' wall and so forth and we normally don't think about this as environment, especially in South Carolina where our greatest concern is whether we have pine trees, or open space, or wildlife, or clean streams, or lack of pollution, or no smoke around the State House dome and some of these things. But I have always felt that environmental education should be something like music and art. We can't hope that every student that comes out of public schools or comes out of the colleges is necessarily going to be an authority in conservation or environment. But at least they ought to be exposed to enough of it so they have an appreciation of what is good and what is bad. I can't carry a tune in a basket, but I enjoy good music. I can't draw a straight line but I do enjoy art. And this is just a matter of value placing. And we try so hard, and John Culler tries so hard to do this in the printed materials that we put out, that we are trying to convey to people that the time has come when they must establish values to the things whether they use them or don't use them. And we in wildlife, and this is true of many resource areas, have difficulties or have had difficulties in competing with other uses for resources, because there was never any market place in which the things we were concerned with found a place and, therefore, found a price. Too often people consider something that they don't use as being worthless. And the old saying goes that sometimes a piece of land, that the only value it has is to hold the world together. Maybe true, but it's got a place in the whole makeup of things, the whole ball of wax. And I think what we think about environmental education, and how we would evaluate a program in a school would be that the students are being exposed to the concept that the items that surround them have values and they should appreciate it. That the Carolina lilly that grows in the drainage ditch

beside the road is not just something to be mowed down, it's something to be looked at and say, "that's pretty." Or the bird that raises hell because you disturbed it in the big oak, it's got a place there and if that scolding that you got was not there on that morning, you might not consciously miss it, but you certainly would unconsciously miss it, and the enhancement that it provided would be a total loss to us.

(Mr. Lewis Dameron) - Ladies and gentlemen, we are talking about evaluating something that we really haven't gotten into yet. But I think that any program that we move into whether it's new or old, we must have a system of evaluating the effectiveness of it. We are talking about in a sense instigating a new program or changing some of our old ways of doing things to include environmental education into our overall educational system. And to do so, we have to somehow or another come up with a way of evaluating its effectiveness. How is the best way to do this? How do you evaluate? I think, of course, to evaluate the effectiveness of any program, you have to really know what your goals and objectives are. And I think the things that Roger has covered here express a lot of goals and objectives of environmental education. It is to get an awareness of the students, of the teachers, of what all our surroundings do and what effect they have on us, and what effect we have on them. This is pretty broad and it is really difficult to pinpoint these things, since it affects different people in different ways, and the way we act and react affect things in different ways. I think the end result is with the students and the things that they may or may not do as a result of conservation or environmental education. I think in evaluating a program, we have to look at the student level whether it be the elementary or secondary school or wherever, and see what has happened as a result of our endeavor to incorporate environmental education into our curriculum. Some of the things that I think we can look at are difficult to measure. But what is happening within the school itself. Is there an awareness, is there a concern, are there actual things that have changed. Are people more interested in their classroom? Are they more interested in their building? For example, are they more concerned about their school grounds and its appearance? I think this is one of the things that you can look at to evaluate this type of program. Are the students, teachers and the community becoming more concerned or less concerned about the quality of their environment? Are they getting involved? Are they looking first at the school ground at what they can do to improve or develop it? And also, are they looking out a little bit farther into the neighborhood? Are they being concerned about the quality of environment of the neighborhood, about pollution, about land use, about wildlife, wildlife development, and of course most of all, and this I think is the key to this thing, are they concerned about people? When we talk about conservation or talk about science, we are talking about how it relates to people. I think we are talking about environment. But I think this is where we can first start seeing, are we having a material effect upon the people and if we are, are they reacting or acting within their community and neighborhood and out across the whole county to change the quality of the environment. Not necessarily change the environment, because I am not sure what we can do about this, but change the quality of it; improve it, clean it up, protect it where this is necessary. If I went into a schoolroom or into a class or a school in a primary or secondary level, what would I look for to see if I thought a teacher was doing an effective job of environmental education. I

would look for the same thing that I am reasonably sure you would look for in whatever subject they might be teaching, except I would look to see if she or he is involving environmental education into the entire curriculum. Whether it be English, math, science, or biology. And the thing that impressed me most here today is a teacher lecturing or is a teacher getting the students involved? In other words, is the teacher using the tools, the posters, art, art-work, if they are used in the right way, to get students involved on pertinent everyday or down to earth subjects in which we are all concerned with. Or is she giving an essay on something that the students cannot relate to?

(Mr. Walter T. Ahearn) - I think all of the resource agencies are in agreement on the philosophies and general objectives that the two previous speakers have talked on. I would like to get down to a few more specific things and just touch on them briefly within the frame-work of that philosophy. Now you all know far better than we do that one test of whether a teacher is teaching is whether the student is learning. And perhaps even more important than that, what the student is learning and how he is learning it. To judge these things involves both tangible and intangible factors. Now there are a number of things I would look for in evaluating a program at a school or in a classroom and one might be relevance, both as to time and place. So much that's taken out of books is not relevant to our present time. But there's so much now in the newspapers and television and what's going on in the community, so I would look for relevance in terms of time. And also in terms of place. The BASF controversy was mentioned - this certainly is relevant. It's not ended yet. The second thing I would consider would be the breath or scope of the program, both the geographical and in subject matter. In geographical, I would say that certainly I would consider that conservation education or environmental education is sort of like charity; it should begin at home, but it should not stop there. So there's no reason why a class should not consider things like the oil slicks in the Santa Barbara channel or oil fields off the Florida coast, or off the coast of England, or oil royalties disputes in South America or the middle East or the Alaska pipeline situation or fish kills anywhere or the seizure of tuna boats off Chile. And all these things you see are related to natural resources and yet they are also related to economics, to history and all the subject matter that we are talking about in integrating environmental education into. In that connection, I would look also to see if there's a sort of cross-fertilization of ideas. And this was touched on today. Does one grade share with another? Either through viewing experiments as was mentioned before, or displays or posters on the school bulletin board, or perhaps in assembly programs, write-ups in the school paper. A little out-reach effort from an individual class project can sort of interest and infect the whole school. Also in breath, besides the geographical breath, I would consider subject matter breath, and although I might be primarily interested in forests and the resources directly related with forests, I am sure that if environmental education is taught anywhere in South Carolina, forests are going to be a part of it because forests are such a vast part of our state. As Al Dorsey mentioned the other day, 64% of our land area is in forests. So I'm not too much concerned about the technical aspects of forestry or whether the children get the facts and figures straight as long as they get the concepts straight in the inter-relationships. As far as breath is concerned, I would like to and would look for emphasis or at

least the inclusion of items of coal mining problems, anyone of these things now can lead to a whole chain of reactions. It involves natural beauty, individual miners, human health, it involves the run-off which affects the water and soil erosion, vegetation planting, beautification, open-space management, history,economics, you can just name it and you can just take anyone of these things. Even though we have no coal operations in South Carolina, I think to be in tune with the times, and to be broad enough, an environmental education program ought to touch on coal, nuclear power plants, on forest fires, on wildlife, on population problems. And here I look for different things at different grade levels. Because certainly you are not going to be talking about zero population down at the first and second grade level, but perhaps up in the high school and university level; this is valid. But population situations and problems and forecasts are certainly valid. Matters of pesticides, water quality, soil erosion, solid waste disposal, and so on. And also even going out of our biosphere, are our children blase now or are we calling their attention to the fact that we have an Apollo mission underway. In this morning's "The State" there is a picture of Wally Schirra, three space trips made - Schirra an environmentalist. Three trips into space made him realize that earth is where man must live. That's why he gave up space-flying to clean up things on the ground. Now he is an environmentalist with his own company and wants to do something realistic about pollution. Turns out there really is no place we can move people who are living on earth. And that's why I'm doing something about the environment instead of talking about it, he says. Schirra's complaint about most anti-pollution programs is that they are froth with emotionalism and this was touched on. With his firm, Environmental Control Company, he plans to work at combating air, land, and water pollution with preventive maintenance to avoid offshore spills as one of his first goals and so on.

Another aspect I would look at is the use of school facilities. Whether they are being used and how they are being used. The laboratory facilities, the school library, the school grounds. I would also look to see whether the teachers' guides are there, and more than that, whether they are being used. Because you can look sometimes at what material the teacher has, but that doesn't say that's the material the teacher is using. Is she using kits? There are any number of environmental kits now. Or even better, I would like to see if they are making their own kits. Because these can be learning experiences rather than buying them from Carolina Biological Supply or some place they can put them together themselves and have a learning experience in the process. Are they utilizing the various skills and abilities of the teachers on the staff? Not only with regard to the various subject matter that they teach, but perhaps even with their hobby interest, because if you can get a hobbist involved - a terrific interest that he can convey to the children. Teachers have hobbys, or get an outside person from the community. He can infect them with enthusiasm. Also from the forestry standpoint, I would look and see if they have the materials that we have been distributing to schools for about 18 years now. We started out with giving all third graders a certain peice of material. And then we added the fourth and the fifth, and then we added a program for the sixth grade. So I would like to see if the teacher has received and is using our materials for the second, third, fourth, fifth, and sixth grade levels. Is she using the forestry films that we have available? Is she using Wildlife Resource

Department printed materials and films? The SCS materials, the forest service, the forest industry films and other materials? In addition to the school facilities, I would take a look and see how they are using the community facilities. The local library, public library I am speaking of, field trips, science museums, resource people from government agencies in wildlife, forestry, local nurserymen, resource people in corporations and private business. International Paper Company just across the way, they have some resources, some problems, and they have some answers relevant to the local situation. Every child ought to be able to identify poison oak, poison ivy, this kind of thing. Museums, the nearby colleges and universities, nearby health department, involving personal environmental health problems, community health problems. I would try to find out too, whether the teacher has a teaching plan or an outline. Does she have one and then does she follow it? Is it organized or is it haphazard? Does it include the use of teachers' guides? Does it provide for correlation with curriculum requirements? And then is her plan flexible to take advantage of what someone referred to here. I think Dr. Rillo mentioned the red fox on a geology field trip; the teachable moment when something happens and you can take advantage of it. Is there imaginative use of teaching materials and techniques? Does she improvise? These are in no particular order or weight but I just jotted them down as they occurred to me.

Does the teacher tie in the special days or week? John Jackson mentioned "Earth Day", "Earth Week". There are other logical things. By state law in South Carolina, Arbor Day is set up as the first Friday in December. We provided about 50 or 60 thousand copies of an Arbor Day program sheet for schools that we hope will interest teachers in having a local program, hopefully including the planting of trees or shrubs or anything else on the school grounds for beautification purposes and this outlines a program and does some work for them and make some suggestions. Things like National Wildlife Week, Farm City Week, any number of weeks. I think you can run this in the ground, but there are some logical tie-ins to an environmental teaching program. And hopefully on some of these things, particularly on "Earth Day" or"Earth Week", I would hope that the thrust would be positive and constructive rather than negative and destructive. And this perhaps needs some guidance from the teacher to see that it goes this way rather than just protesting about the problems. And in connection with the use of a film or during a special day or week, is the teacher just latching onto a thing as a spur-of-the-moment thing as it comes up in the newspapers or is there advanced planning and build-up to this. And then is there proper conduct of the activity and is there follow-up of the activity, so that it can be a meaningful teaching unit.

I have a note down here on contest, and I noticed that Lewis steered away from that thing, but there are some contests available, and I think the reason he stumbled is that there has been a long standing essay contest on conservation sponsored in this state and the participation, whether you agree with the concept of contest or not, has been tremendous. Thousands of children entered that you know about and there may be others that you don't have any record of. But there are contests, there are special films or speakers available, and there are camps available. There is a South Carolina Youth Conservation Camp and a conservation camp up at Clemson and this sort of thing.

Is there coordination between the various grade levels in the various subject areas; poetry, literature, history, economics. Are all the teachers involved? Are all the students involved? What is the attitude of the teachers, and the principal and the staff, including the custodian. Are the parents involved?

How about the practical application of some of these things. Is there erosion control on the school grounds such as the playground or is it just compacted there. How about the slopes? How about litter receptacles in the area? Are there beautification plantings? And here again consider not just the establishment but the maintenance of these plantings. How about the use of the school grounds for teaching both directly by the use of the materials and indirectly through the influences of shades, noise control, oxygen production, beautification and so on. And how about multiple use on some of these things. We see so many chain-link fences around. And here's a logical place to make some plantings of vines, of plants, roses, and not just to go to one species, but to diversify to have succession of blooms to provide wildlife food in so many cases, to provide beautification, to provide sound absorption, to provide screening, oxygen, teaching opportunities, all of these things just by planting some vines on the chain-line fence. How about the use of audio-visual aids in the schools, the blackboard, the bulletin board. Encourage the use of children to get timely items to bring them and this can give you a plus, because it involves, I'm thinking on the elementary level now, it involves the child and his family. He goes back and his parents are on the lookout for this sort of thing. And they call his attention to something in LIFE or LOOK or the daily newspaper and he brings it, so you get some flow back to the home. If you are talking about pollution, he will find all sorts of things in the newspapers, he will hear it on the radio and television. But if he is not attuned to this, they will just go right by him. Slides, filmstrips, overhead projectors, motion pictures, use of educational television or television, special programs were mentioned. The Vanishing Wilderness Series for example, or the Ralph Nader Reports were a series on ETV that would have relevance to this. The use of field trips, individual or organized groups and so on. And then also, I would look for another - maybe intangible - does this program and teaching have possible carry-over value. Not just to meet the needs of the curriculum, but does it have carry-over value to later grades and to later life. I am thinking of hobby interest and further activities that can be involved in hiking, camping, an appreciation of nature, photography, bird study, wild flower appreciation, fishing and hunting. The old nature study approach can provide a very useful vehicle for generating a little awareness and understanding and appreciation and maybe even more later on. But these can provide enrichment of living and enhance the quality of their personal lives as they go on and as they leave school. And is the teacher concerned with the overall child development in these ways. Does the teacher and students evaluate their program. Not just at the end of the semester or the end of the school year, but as they go. If they are evaluating confidently, they can improve it as they go and this evaluation can also be in some other form of a summary to reinforce learning. It can act as a reviewer or a summary periodically as you go. I think this is good teaching techniques and it can identify weaknesses and strengths of approach and techniques that might be used in the neighborhood teacher to correct these weaknesses, and to build on the strengths to make the

program even more effective for the students, not only for the current year, but for himself and the students in the following year. And then basically too, is the teacher in the program teaching specific and generalized facts and figures, or is she teaching principles and concepts. This is the approach used in the teacher's guide which we hope they will follow. And then another intangible that I think as you evaluate a program you can sort of sense in the classroom, does the teacher and the class feel comfortable. Does it feel right, or are they forcing these things because somebody said they ought to talk about pollution or include something on the environment. These are some of the points that I consider in evaluating a conservation program at the school or classroom level.

(Mr. F. E. Dubose) - I want to tell you that I am happy to be here this morning. I'm sorry I couldn't get here for the entire conference. Through the good work of Al Dorsey and others, we came up with these curriculum guides which I think has been one of the biggest innovations in getting conservation education across in South Carolina during my forty-two years of public school teaching. The guides are no good unless we can get these teachers fired up to use them.

John asked me to tell how I would evaluate a school concerning the effectiveness of the job done in teaching environmental education as viewed by a superintendent. Walter and I evidently went to the same school, as he made his points here, I had down about everything he said so it may be a little bit repetitious. Being a superintendent for thirty-six of my forty-two years in the public school business, I have enough ego to think that everything evolves around and from the superintendent. And I get the blame for everything that's not done in my school. Rather than blame my coach, I feel like the blame is thrown right at me because I have an important job in my community and my school. So the first thing I would do if I were to go to a school to evaluate an environmental education program would be to go to the superintendent. Because that is where I am going to find the key to whether something is being done in that school or not in environmental education; that superintendent and the principals. And I would soon find out whether there's interest or lack of it at the top level. And I would soon find out if there's any motivation evolving from that office. We have lots of laws of learning, we don't get any teaching done without that word "motivation". That's first and foremost. If you aren't motivated to do a job, you just don't do it. And that motivation has got to start with the head of the school, the superintendent. Then from him down to the principal. I would check through that superintendent to see if funds are provided for inservice education for teachers in environmental education. To see that they are providing funds so that a teacher can go free of charge to a college. And I am delighted with the leadership we have in our colleges here today, and your motivation for conservation in public schools. You can't send a teacher to one of these courses in your college without them coming back and doing a better job. Because they get motivated as a result of the fine work you do, I would find out whether that school is furnishing money for teachers to go off to take courses in environmental education. And I would see if the school had in its budget adequate money for audio-visual aid materials such as filmstrips, movies, the projectors, tapes, record players, etc. Without those tools, they are not going to do as good a job as they could with them. Then I would go to the library and I would take a look at the library shelf. And I would see that there

were books and periodicals in the library on environmental education. Then I would peep in the back of that book at that student card to see if there are some dates on there, whether that book has been used. I had a little daughter write a term paper this past year. And she went to Sumter to get some books on the particular subject. And I'm a Carolina man, she happened to go to the Clemson campus in Sumter. She got four books from that library and they were wonderful books. I looked over them and she was the first one to use those four books, according to the thing in the back of the books. So I would see whether those books are not only on the shelf, but if they are being used by the students. Of course it's not the fault of the student, it's the fault of the teacher if they don't refer them to those books for research work. Then I would look at the inservice training program for that school. Every superintendent plans a program for the year. We have five days. But I would see whether in this five days of inservice training that we have in a year now, includes one, two or three good inservice training programs on environmental education. They have no excuse not to have it now because John has done a wonderful job in working up inservice training programs for public school teachers. Then I would take a look at the school ground. School grounds reflect the interest in environmental education. I would look to see whether there was an outdoor laboratory on the schoolground. And if I see that, I would know that environmental education is going on in that school. You mentioned essay contest - I would look to see what the participation in that school is in the essay contest sponsored by the state. We realize that there is some criticism of the contest. We've changed it a little in our school. Instead of selecting one winner, we have a standard. If they come up to that, they all get recognition. And for the past 10 years, I've had 100 percent participation. Every kid that goes through the fifth, sixth, and seventh grade. They write an essay on conservation or something. My English teachers use it in their theme writing, my science teachers use it, my agriculture teachers use it. The good that comes from those essays is the research work done by those students. And I would see whether those schools are making use of the service of the soil conservation district.

Then above all, I would check to see whether those teachers in the class, every one, would have in their possession a curriculum guide that fits the particular subject that they are teaching. You know about these and I am not going into detail. There is a man that gets 95 percent of the credit, Al Dorsey, for this fine job that was done. It contains 60 or more units that that classroom teacher will have at her fingertips that will be easy to develop, and if she's got this material in her room, I would say that there is some conservation education going on. Now after I've checked on whether the climate and the atmosphere has been set by the superintendent and the principal for a good job in environmental education, I would go to the classroom to the teacher. The superintendent can do the work in setting the stage, but in the final analysis, the teacher is where the action is.

Someone has said that nothing ever changes unless the teacher changes. And in 42 years, I know that's true. If I want a job done in any school, I've got to get those teachers into it, into the planning, the implementation and the evaluation so they become a part of it too. So these teachers in the final analyses are the ones that are going to determine whether this thing is done in our public school. You can tell

very easily whether they are doing the job. They have to have a knowledge of this subject matter before they can teach it. So that teacher, in the final analysis, is the one that's going to make this or break it. And we can tell whether they are doing a job. I tell my teachers that if I can't walk down the hall and look at the walls of the room and the reading tables in the back of the room and the blackboard and tell whether they are teaching first grade or fourth grade or science, social science, or mathematics or home economics, they are not doing the job. Their room should reflect and be a motivating force to students. So I would look at the displays on the walls in that room and see what's going on. I'd find out about the science fairs. I was real happy this past year to find a great number of our science projects based on ecology. I had some visitors coming in to look at my science fair and I hadn't seen all the projects. I saw this old trash can there with just paper and everything just spilling all over the thing. And I said, "My gosh! Go get the janitor in a hurry. I got to get this thing cleaned up." But it turned out to be a part of a winning science project. And it was on ecology. So I would look at science projects to see what the students are doing. You can use that science project as a motivator to do a lot that you couldn't get students to do otherwise.

Then I would find out how much use our teachers are making of periodicals that come in. You know one of the finest medias of instruction that I know now is this little "Weekly Reader" that comes, and it's printed on the second grade reading level and right on up. You can get an education out of that second grade weekly reader. I say that because my "boss", my wife teaches second grade and I see those books. But she came home yesterday and I told her I was looking for things to point toward good teaching of environmental education. She said, "Well, I had it today." The weekly reader came in and my kids were fascinated. The whole thing was on ecology. It had pictures of this intersection in Los Angeles, a busy intersection, where cars were just lined up that came to a stop and had to wait; it had a robot directing traffic both ways and it went on to explain why. That there was so much pollution coming from the automobiles that came there to stop at that intersection, a human being couldn't stand it for over an hour or two at the time. So they had to put a robot there. And that really got the interest of those children. They became interested in it and I am sure it was a learning experience for them. So I would look to see whether the teachers are using that type of media in their instructional program in the public school. And I like to find a teacher out of their classroom occasionally in that school on a field trip; visiting outdoor labs. I would look to see whether that teacher is standing up there lecturing all the time; we know that isn't good teaching. That has already been said here but it bears repeating. I would like to see these curriculum guides used. It came up in South Carolina this year, there were some lay people that thought we were missing the boat by not having some formal courses in high school and elementary school in environmental education. So I told them that I didn't know the answer but I would take it up with the ones that did know and that was Al and John. And their philosophy came back the same as I tried to explain it that day, that it would be more effective to use these guides which can be taught in any subject matter course in school than to open it up to one formal course. If you have a captivated audience in a formal situation, they often loose interest. I am sure those kids were more interested in that robot since it was something out of their formal classroom work.

I would check with the students on the general knowledge of what environmental conservation is. Can they have a general knowledge of it, can they talk fluently about it? It is amazing now the things that first and second graders can come up with in a conversation on ecology. They are a sure give-away of whether a teacher has done a good job. It's going to be reflected in those students, in the final analyses, that's what teaching is and that's what I would look for.

(George Dainty) - I guess I have the next part on the program, and during the brief time that remains, I have the responsibility of talking about industry involvement in environmental education. I kind of look at industry as being the man wearing the black hat here today or in any environment group that I get with, and I don't really feel that it deserves that position. I know that my industry has aspects of pollution about it, and I know that people here and in other gatherings probably feel that we should have been doing something about it long before we were forced to do something about it and they are right. My only answer is my industry and other industries are active in this field, that we are trying to do what's right for the country, that we are putting tremendous amounts of money into cleaning up streams and making the air smell a little better. Continually, my other answer is to be patient with us and so this is the way I open my presentation this morning with those feelings. Also, I realize that when we talk about environmental education that we have to talk about all sorts of aspects of it, and one of it certainly is pollution. I think we have to look at all aspects of conservation dealing with force development and water development, quality development of the water and the air, and many of the other ideas that were brought out here earlier. And then I look at the program and I see that maybe my responsibility here is a little bit different from the rest of the people on the program. Maybe my short presentation won't be an evaluation, but rather it will be an idea of how we do look at environmental education and determine what our responsibility is in this field. The best way to do it I guess is to bring out an idea that I brought out at the Conservation Education Association Meeting in Lafayette, Louisiana, in which educators like yourselves got together with agency people and industry representatives to discuss aspects of conservation education. I guess many of the ideas that came out there are similar to ideas that may come out here.

In preparation for that particular panel, I sent a survey around to many of the major power industries in the United States, many of the major petroleum industries in the United States, and a good many of the wood using industries and associations asking basic questions about what they thought their responsibility is or was, and then attempted to compile it into a report that might be useable for that meeting. I have copies of those reports from the three different industries; petroleum, power and the wood using industry. The power industry represents a report from 17 of the major petroleum companies in the United States, the wood using industry represents the responses from 38 of the major wood using companies and 30 of the principal wood using industry associations, like my own, and the power report represents the responses from 67 of the principal investor owned power companies in the United States. I will leave them up here, you can look at them. I asked them about their involvement, what they were doing in the field of conservation education. I asked them what they had planned and many of the answers are there, so I won't take time with that, but I hope that you'll each pick up a copy of the

three. Industry has an attitude about environmental education and many of the decisions that are being made relating to the environment, and it was brought out here. Industry feels that the value judgment should be made, not emotional judgment. And all too often environmentalists or people who have some feeling for the environment are too emotional in their appeal about it. And this is all we ask, that you sit and consider all aspects of change, that you sit and consider everything that you are talking about in terms of what you want and how it can be accomplished and that you approach your problem in that manner. If industry is given this benefit of the doubt, and value judgments can be made, then I think we will come out all right. We have many things going against us in addition to the water and the air and all that sort of thing. The trend now through many of the preservation st groups are that trees shouldn't be cut for products because they are too pretty to look at. And for those of you that saw this little short thing that we did out here in the living room, you see one of the ways that industry is working to dispel this idea. A short presentation - The Birds, the Bees, and the Trees, trying to show inter-relationship with things and nature and trying to bring out the idea that trees are to be cut. I don't know if it accomplished it or not, but it helped.

John asked in my presentation that I discuss what monies are available from industry for environmental education programs and processes. And basically this is the way so many people look at industry. Industry is a source of money without being a source of imput. I don't have a complete answer for John, that some particular question was asked in these questionnaires, many of the ideas concerning money availability is brought out in that so I won't go into that. But I am critical of a few things in South Carolina, and maybe I'm talking off the top of my head about one. I don't understand why industry isn't represented on your advisory council. I mean there are many industries in South Carolina that can add greatly to this advisory council. And I think industry has a part in environmental education because they have a stake in it. I talk so much about products, and I talk about the needs of my industry for wood, for products, and yet maybe too many people think that we are motivated toward cutting trees too much and that's our total stake in the environment just to get those trees down and to get them made into products. But I think we have a stake in the educational process and I illustrated it by some of the materials that have been produced by industry and by associations representing industries. Some of the material that St. Regis did, you may have seen in your advertisement campaign of a year or so back, they put into teacher teaching charts. They have done brochures on it. It was the basis for one particular book that was written entitled "The Secret of the Forest." This is industry involvement in environmental education and I don't believe this thing is slanted in any direction toward or from industry. The same way with the charts. They are strictly informational pieces. So this is the way industry looks at it. We are involved in many projects, teacher workshops, workshops for senior education majors at different universities in Arkansas. We are starting them in North Carolina and Virginia, and hopefully in South Carolina sometime.

(Jackson) - I would like to ask F.E. one question. F. E., you weren't here yesterday when we were talking about simply training people in environmental education, perhaps in a masters degree or

whatever, can you foresee a time when schools in South Carolina will hire environmental education consultants like they now hire reading consultants or science consultants or whatever to work in a superintendent's office and go out and work right with their local school districts?

(Mr. Dubose) - You mean on the local district level?

(Mr. Jackson) - On the local district level.

(Mr. Dubose) - I do see that possibility. The only limiting factor would be finances, and if the ecological problems continues to develop, we will have to find some way to overcome that problem and get them anyway.

(Sarah Walker) - I would like to know more in detail about these teacher workshops in North Carolina designed for senior education majors.

(Mr. Dainty) - Well, they are workshops that were designed for senior education majors in universities in the state. We've had a program going in Arkansas in cooperation with the Arkansas Forestry Commission whereby we have been going to about ten different universities in the state during the spring semester and during the fall semester for their senior education majors. We sit down with them at the forestry workshop. We talk about forests as they relate to wildlife and water and all aspects of it, with industry participating with the Forestry Commission, with the Game Commission in that state, SCS is involved in it; it's a one day deal now, it originally started as a two day thing.

(Mr. Jackson) - How does someone get one on their campus? Do they contact you and arrange it?

(Mr. Dainty) - Well, we have been kind of the motivators for it. We make our original contact first with the Forestry Commission representative and ask them if they will work with us. That's the individual that does most of the leg work. And then our men and the Forestry Commission men will get with either the president of the university or the head of the department of education and make the proposal to them, and they either accept it or they don't. In Arkansas, it has been accepted well. It's in its sixth year over there. We have had probably 7,000 or 8,000 students that have been exposed to this. We are starting the very same program in Virginia at five universities, starting next month. Then we are starting the same program in three universities, Fayetteville, for one, next month also. The same identical format. And the reason I am not pushing it too much in South Carolina is that our field man is already up to his neck in North Carolina and Virginia. He also works South Carolina. But the schools are receptive to this sort of thing for the most part. I have had inquiries from Georgia Southern and from West Georgia over in Georgia. Several of South Carolina schools have indicated an interest. It's a matter of just somebody getting in there and beating on doors, and having the time and willingness to do it, and that's the big thing that counts.

(Mr. Jackson) - Are there any questions?

(Mr. Dubose) - I had thought since you asked me about getting that consultant on the local level, the state began several years ago furnishing a psychologist to schools with 5,000 students enrolled. You are entitled to state aid for one psychologist for every 5,000 students and you are entitled to state aid for a speech therapist for every 75 to 100 children that need that therapist. Well, the small schools don't have enough students to get that service on their own, so we've done a little something in my area. We have five relatively small schools; Pamplico, Lake City, East Clarendon (which is mine), Manning and Summerton, and we've pooled our efforts and we have three speech therapists and three psychologists working now. I said the large schools could get them and the small schools could too by cooperative effort like we are doing to get psychologists and speech therapists. That would be something that our Advisory Council could work toward in getting funded on the state level on a basis similar to psychologists and speech therapists.

(Bob) - I would like to comment on this matter of the various consultants. In my dream curriculum of the future, I am going to have four major subject areas, and we are going to change the terminology just because we get hang-ups about some of our previous ones. And the first one is going to be communications rather than language arts. The second one is going to be computations rather than mathematics. The third one is going to be culture to get away from social science, and the fourth one is going to be environment. And we are going to have a vertical integration of this curriculum as well as horizontal integration. But I think the primary grades is one of the particular areas for focus on the environment. Whereas they go out and observe and classify their environment. And I think if we operate on a curriculum basis like that, we could have our specialists for consultants in four major areas.

(Mr. Jackson) - May I add one thing. If the undergraduate and graduate level environmental education is worked right into all the other courses, then there is really little need for consultants to work with the teachers specifically in environmental education.

(Mr. Jackson) - If there is no more comment, I would like to add one or two final comments. I think we have gone way beyond the awareness level, and through much the interest level, and are really left at the trial level. I hope when you get back to your campus, you will try something. One question I ask, do you feel that perhaps next year we should meet again and see what was the results of the trial? I see a lot of heads nodding - good!

I will go on record as saying the environmental education consultant in the Department of Education will do his best to serve as a clearing house for you, to provide environmental educational materials for any of you people and also if you want a workshop with your faculty or something, call us and we will try to help you again all we can.

We hope that you do have success in setting up an environmental education committee on your campus; get some interaction, get a program; and I will look to you people when I start getting letters saying what's happening with environmental education in South Carolina, and when they particularly say what's happening in the colleges of South Carolina with environmental education.

So we've talked a lot, and a lot of other people have given lip service to environmental education and environmental problems. I just hope we do more than lip service.

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